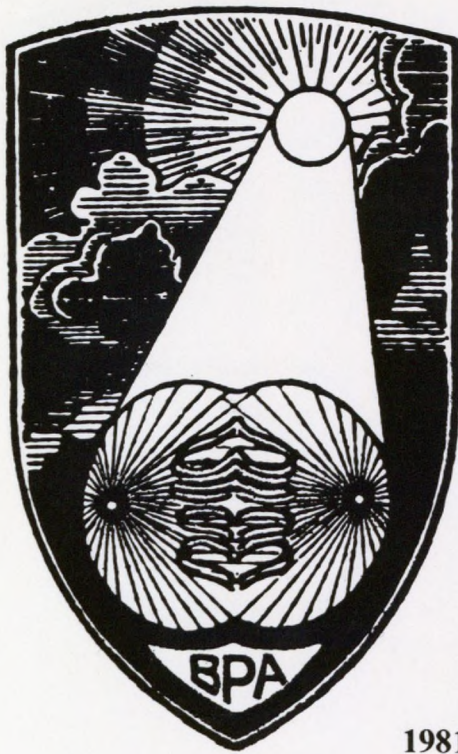


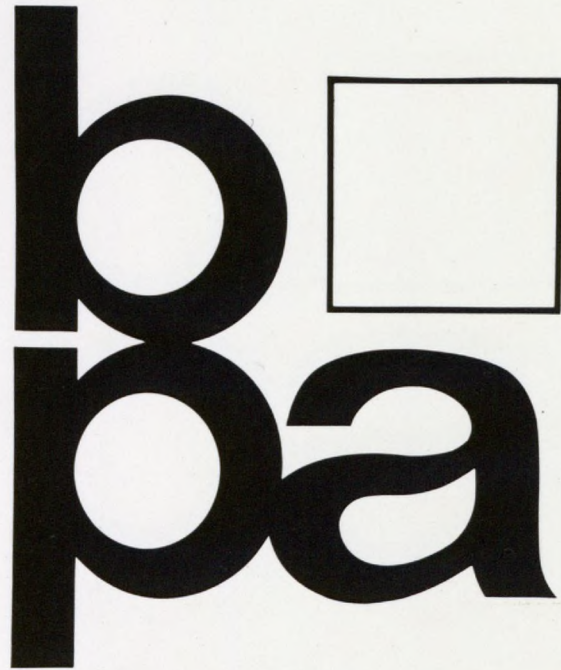
THE BIOLOGICAL PHOTOGRAPHIC  
ASSOCIATION,  
ITS HALF CENTURY

H. Lou Gibson, RBP, FBPA, Hon. FPSA



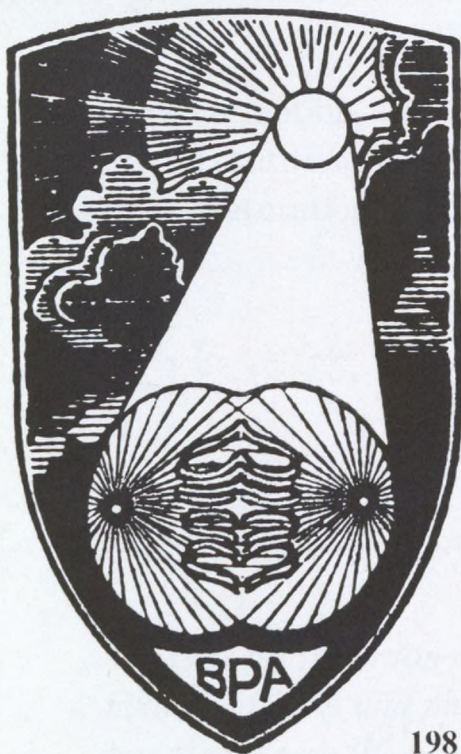
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# THE BIOLOGICAL PHOTOGRAPHIC ASSOCIATION, ITS HALF CENTURY

H. Lou Gibson, RBP, FBPA, Hon. FPSA



1931

1981

**bpa**

*The production of this book was made possible by donations from members and by a contribution from Kodak Canada, Incorporated, and Eastman Kodak Company.*

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# THE BIOLOGICAL PHOTOGRAPHIC ASSOCIATION, ITS HALF CENTURY

**H. Lou Gibson, RBP, FBPA, Hon. FPSA**

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*... This presentation not only chronicles the history of BPA and photographic technology but also traces the parallel rapid evolution of visual communication—photographic, art, and video illustration—that influenced the philosophies and methods of teaching, research, and publication ...*

## About the Author

H. Lou Gibson, RBP, FBPA, Hon. FPSA, has been active in every aspect of the Biological Photographic Association during 42 years of its half century. He has been President, Editor, Director, and member of the Board of Registry, and he has served on 13 different Association committees as well as in several chapter posts. He served as advisor and member for committees dealing with education and procedures during the many years required for working out the BPA program for certification. He was the only one left of the original 1945 task force to be appointed to the Board of Registry when it was constituted in 1964. In the 47 volumes of the BPA Journal, there have been only four members who have contributed more than 20 papers. Lou is one of these four authors.

Lou Gibson retired in 1971 after 38 years as a technical editor for Eastman Kodak Company. He has written on and researched: clinical, pathological, dental, natural science, laboratory, forensic, infrared, and ultraviolet photography, photomacrography, and photomicrography. He has given numerous lectures on techniques, photographic quality, and applications in these fields at Association, regional, and chapter meetings as well as at refresher courses and workshops. He has lectured on various aspects of biophotography in eight overseas countries and Canada and Mexico. He has written 14 books and data books on pictorial, technical, scientific and medical photography, including his recent 545-page volume on infrared photography. He wrote chapters for several other books.

About 1940, Lou made what was probably the first 16 mm, slow-motion color studies of the human heart. He pioneered infrared reflection and luminescence photography. Working with the Dead Sea scrolls in Jerusalem (1965), he discovered that they could be recorded by infrared luminescence as well as by the reflection technique. Also, he developed, in the fifties, the first comprehensive theory of the optics of photomacrography.

For the 1957 International Photographic Exposition in Washington, D. C., Lou organized and manned a day-long symposium as BPA's participation. The BPA theme was: "Photography as a Visual Complement in Biological and Medical Communication." He read his own and some of the other papers. The papers were then edited by Lou and published in the Journal of the Biological Photographic



Questions and answers at the First Annual Workshop-West, Santa Barbara, California, 1977.

Association, Vol. 25, Nos. 1 and 2, 1957. The majority of the 7,000 copies of this special issue were used by BPA members and committees and Eastman Kodak Company to answer inquiries on the role and value of biophotography in general and BPA in particular.

The Louis Schmidt Award was presented to Lou Gibson in 1960. He was among the early Fellows of BPA. In 1966 he was presented the combined Royal Colleges Bronze Medal of the Royal Photographic Society Medical Group. The Photographic Society of America honored Lou with its Progress Award in 1973. In 1980, he was presented with the President's Service Award. His photographs have won numerous awards in both BPA and PSA salons. Always, he has been a keen proponent of high technical and informative quality in black-and-white and color photography.

The Biological Photographic Association is honored to have Lou Gibson chronicle its history.

T.P.H.

# The Biological Photographic Association, Its Half Century

H. Lou Gibson, RBP, FBPA, Hon. FPSA

## INTRODUCTION

Writing history is the recounting and interpreting of the warp and woof of bygone actions and reactions. BPA history has been woven by the efforts of our members in meeting many intriguing challenges. The BPA was started by a small group whose aim was to improve the status and usefulness of photographers in the medical\* and natural science fields through the mutual interchange of ideas, education, and experience. By adhering to these aims we have established an organization whose contributions have become indispensable. Scientific photography both supports and advances new methods and discovery. Consider for a moment teaching without slides or films, books without photographic illustrations, research without scientific photography, and notes and records not augmented by means of the camera.

The historic need for illustrative aids was first met by artists when the investigators were not able to produce their own representations. Powers of observation and graphic skills varied. There is still a need for competent delineators today. But theirs is a rare talent—too rare to satisfy the exploding need for biological and medical illustrations. Photography supplements their art and meets the demand.

Early photomicrographs and nature photographs were basically plain and straightforward in style. The technical quality kept pace with improvements in equipment and materials. An embellished research mode had been advanced by Muybridge and Marey for motion study. Medical photography in general lingered in the contemporary daguerrotype, tintype, or formal portrait traditions for some time. The founders of BPA had already broken away to a more clinical style, even though some early medical photographers were drawn from velvet-coated portrait or commercial occupations. Others were professionals who had taught themselves to do photography in their disciplines.

Biophotography, in general, just before BPA was founded, had advanced to many sophisticated techniques and applications. Early medical bibliographies indicate activities in anatomy, anthropometry, kinetics, histology, pathology, orthopedics, dermatology, ophthalmology, oral health, military and forensic medicine, and

stereophotography. Excellent photographic illustrations were beginning to appear in the natural science literature.

Nevertheless, biophotographers were usually working in obscurity and were generally unknown to each other. Methods were not uniform in style nor in quality. Technical information was scarce. While artists were able to study under masters and had their work credited in publications, photographers had no such advantage or recognition. An early photoengraver signed his halftone plates because he considered himself an engraver, not a photographer.

In 1931 the founding of the BPA was an ideal whose time had come, for it was not a false start. The Association took root and formed a base for today's extensive programs. As will become apparent further on, the starting years were faltering ones. So great credit is due the founders for their courage and foresight. The year 1931 was in the barren depression period. In spite of this, the basic organization, an annual meeting, and a publication of a type-set journal are key factors that, initiated then, are extant.

Yet were it not for the efforts of a small nucleus of dedicated members within the group, the Association would have withered. Low salaries and a general administrative unawareness of the desirability for maintaining biophotographic departments discouraged members. It was difficult for them to pay the minimal dues, subscribe to the Journal, and attend Annual Meetings. One member had to donate his blood in order to meet the expenses of attendance. The Journal, even then, was costly to print and was not established well enough to attract a sustaining number of advertisers. Members joined and left. Fortunately, the balance teetered on the plus side. It was many years before the BPA was sturdy enough to rise above such problems. But smugness has to be avoided because similar difficulties still occasionally emerge.

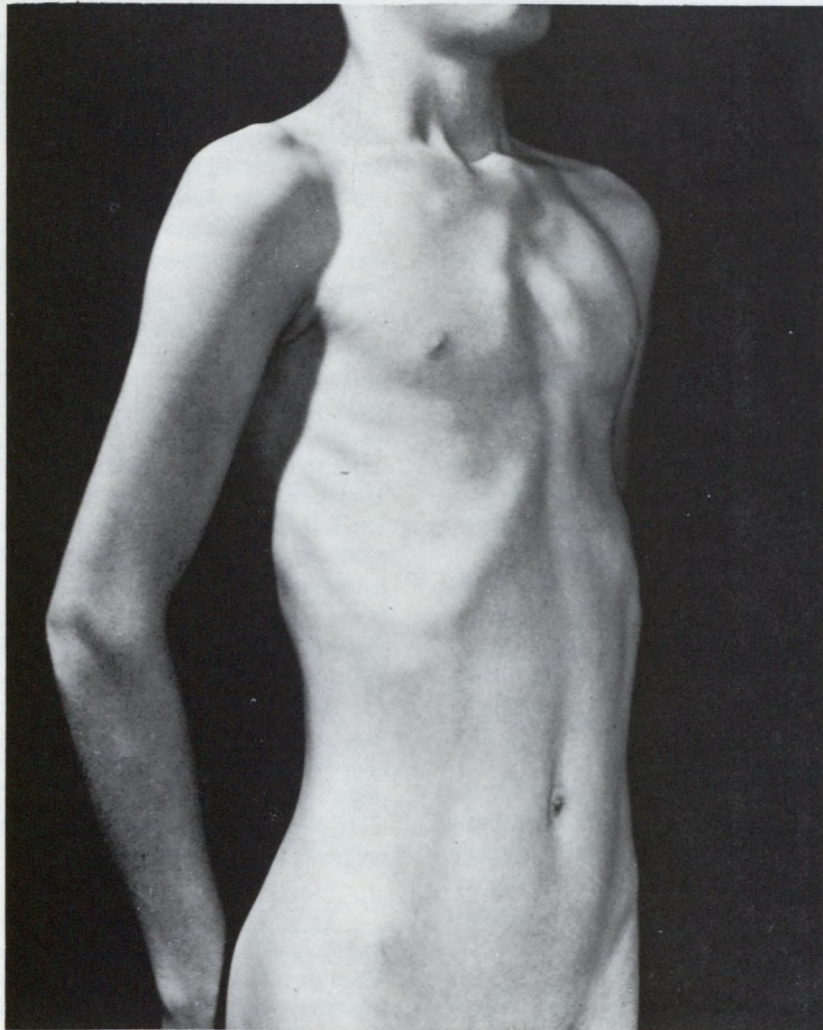
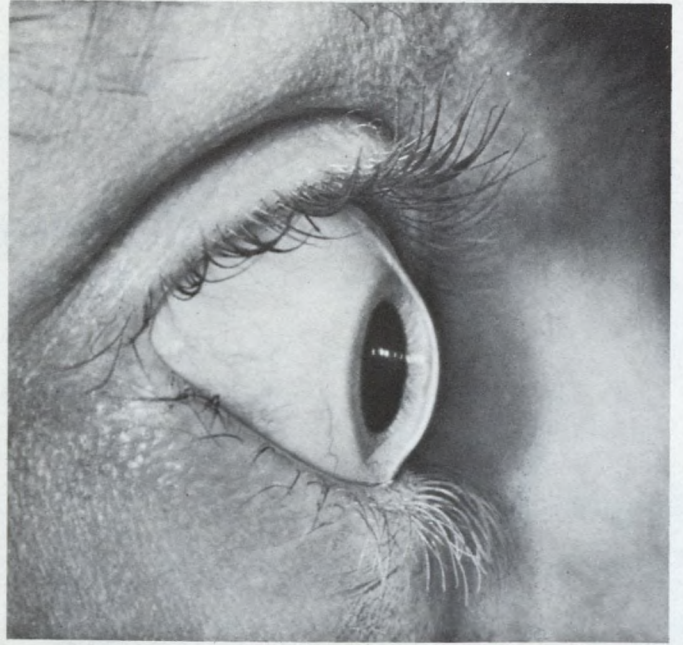
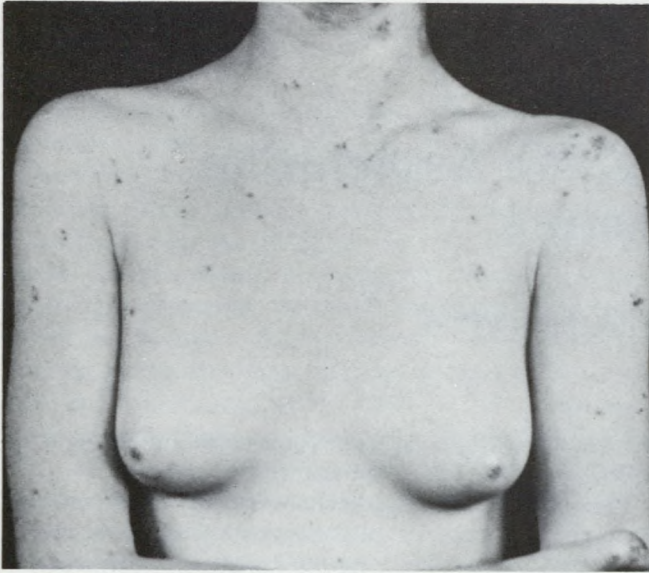
As we approach 50 years of existence a look into the past can focus on those courses followed, and also those abandoned. A fuller appreciation of the force of BPA and what it has done to earn the pride and loyalty of today's membership can be gained thereby. Current and future members can better choose the way to future progress for all biophotographers.

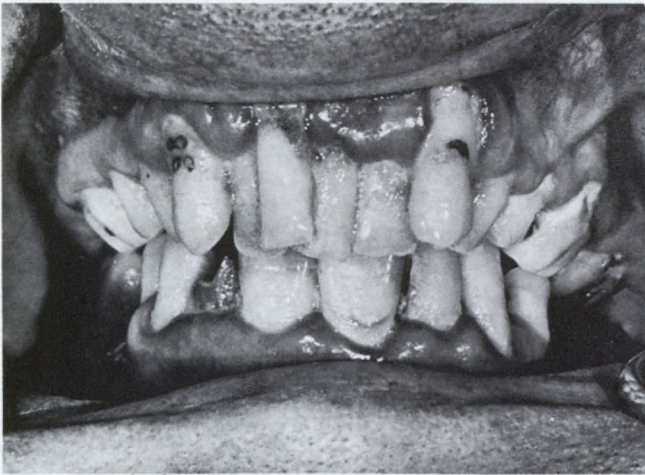
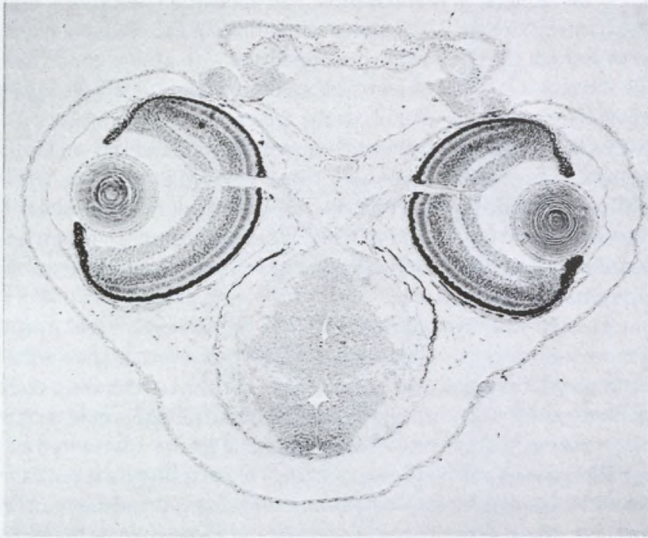
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The examples of early BPA work shown on the following spread are broadly indicative of biophotographic subjects as well as the photographic, photomicrographic, and photomacrographic techniques that still present challenges—from dermatology to the eyes of a monk fish.

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\* For conciseness, this term refers to the healing arts and therefore includes dentistry in appropriate contexts; likewise, veterinary photography is sometimes implied in zoological discussions.







A writer of history is supposed to be objective. But I have lived BPA through most of its existence—my first contribution came in 1939, so perhaps I can be forgiven a certain amount of subjectivity. All past and present members have sustained the Association. Yet there have been many individuals whose energy and devotion have spark-plugged the organization. They will be named in the full realization that their assistants and close colleagues made their efforts successful. For practical reasons, many will have to go unnamed, except in retrospect by those whom they directly influenced.

A member benefits from BPA in proportion to that which he gives to BPA. As I look over all the back issues of our Journal, a significant sequence often emerges. A person's name suddenly appears in connection with some modest contribution—a note, a paper, an exhibition award, a committee appointment, and the like. Then his or her further activities become increasingly apparent. Soon many of these members are listed as officers, board members, directors, or Chapter leaders. Others produce important papers, write or illustrate books, become heads of influential departments, or pioneer new avenues for BPA and in their profession. A large proportion of the leading biophotographers, past and present, got their start with a small chore for BPA. That is history. It is also a lodestone for the next 50 years.

Inevitably, the pace of such leaders slackened. Many are deceased. Today they are names in early issues of our Journal. Their monument is the memory of the influence they had upon their colleagues and the heritage they built for BPA members.

#### **Evolution**

The evolution of BPA can be considered in three eras. First came the formative years (1931–1950). A national and international membership grew around the nucleus. The aims of the Association emerged and the organizational structure took shape. Progress reached a plateau around 1942 and stayed there during the war.

After the conflict, by about 1950, a transition set in. BPA adjusted to the ever-increasing appreciation of photography as a necessity in teaching of all kinds. There was a demand for a greater number of biophotographers. More and more technical skills were demanded of them. The need for understanding the philosophy of communication began to arise. It became necessary to work out criteria for evaluating photographic and personal performance. The education and training of a new group of biophotographers became urgent. Professional certification of some kind was required for inspiring the confidence of clients. Controversy over working toward a trade union or toward a professional status introduced complex difficulties and long considerations before a middle ground was defined.

The BPA met these challenges in this transitional period. As will be seen further on, this era served to consolidate the far-seeing aims expounded by the founders.

By around 1965 BPA entered an era that demanded maturation. With the problems of certification and registration worked out, the Association embarked upon a continuing internal education program and influenced and encouraged external ones. These extend the expertise of older members and stimulate the entry of proficient new photographers into the field.

With respect to organization, many new Chapters have been

formed. Membership increases necessitated the creation of a House of Delegates as a better liaison between the membership and the Board. Widespread regional needs have had to be studied.

Photographic miniaturization, mechanization, television, and computer technology have created revolutions in the production and use of communication media. Consolidation with groups concerned with the philosophical and logistical aspects of education in medicine and biology has been explored. At the present time, cooperation with these other groups exists through joint meetings, and this seems to be a wiser course than forming a merger that would result in a large body having multiple interests. The administration of educational methods and the production of visual aids are separate and complex disciplines. Yet, their common ground is how to best impart new information.

To take you through the history of these events, I feel it will be more interesting to relate the development of phases, like organization and technology, as it occurred in each era. Otherwise, such segments as 50 years of organizational details alone would make tiring reading. Therefore all the activities of an era are treated essentially as units within the era. There is some spill-over when certain activities reach near completion in one period and carry over with only minor significance in the next. Some important features became so well established in an era that there is no need to elaborate further once they have been described. Hence, the 1950 division line is not strictly adhered to in this section, because it would entail some rather fragmentary notes in the sections dealing with the second and third eras.

BPA history unfolded around the activities of the founders, the officers, the Governing Board, the committees, and outstanding members. A succession of Presidents has steered the Association through fair and stormy times. Committees have risen to the needs of chapters, annual meetings, exhibitions, awards, standards, educators, and authors.

This account, and the subject matter illustrations included, also sketch the photographic ambience in which the Association flourished, and which justified the establishment of the BPA Journal as a leading source of biophotographic and related information. Technical progress has been stimulated and chronicled by our Journal. This has been the “cosmic glue” that has held us together. In fact, during my administration as President, a crisis beyond my control and that of the Board delayed the Journal for over a year and almost disrupted BPA. (The details are best relegated to antiquity.) The Journal has also been a medium for exchanging and disseminating technical and administrative ideas among non-members, as well as members.

In the next 50 years, younger members will face the challenges of guiding BPA and of stimulating their own lives in a worthwhile work. They are not likely to meet many new problems, but some of the old ones are sure to repeat. It is human to be unaware of the lessons of history. The events of history have paid the admission to the theater of the future. There is no need to tear up the stub and pay again. If there were, I would get no gratification from doing this assignment.

I thank my colleagues who have supplied data for this history. In particular, the meticulous and voluminous notes on the first era made by Anne Shiras have been of inestimable help.

# THE ERA OF FORMATION

## 1931–1950

### THE DEBUT

The early history of any organization grows from the drive of the people who plant the founding idea. The successive history depends upon two factors, the husbandry and what might be called the genetic fitness of the seed. It was in 1931 that Ralph P. Creer envisioned a gathering of biophotographers devoted to the exchange of technical information. The Thirties saw several photographic groups form around centers of self-awareness. In a few years many such associations disintegrated; some merged into viable federations. Such a course was predicted for BPA. Yet, while its founders too were trying inwardly to find themselves, they also saw a specific external need—awareness. It has been the development of a proficiency in serving the needs for communication that has molded the BPA into the vital organization of today. The idea planted by Ralph Creer was a vital seed.

Events around the inception of BPA come to a focus on Louis Schmidt. He furnished wise council and encouraged our first members to proceed with their plans. A medical and lithographic

artist as well as a scientific photographer and photomicrographer, he was generous in sharing his knowledge. That was unusual in those days. Then, photographers mixed their own solutions; “prepared” chemicals were not available. Not only did they mix their baths, but most of them also had a secret, personal, “one-squirt-of-tobacco-juice” recipe.

Louis Schmidt directed what was probably the largest and best-equipped laboratory for biophotography then extant anywhere, although an active, five-man department was an important facility that had been established in 1905 at the Mayo Clinic. Several biophotographers had served informal apprenticeships under Schmidt. His department was a service section of the Rockefeller Institute for Medical Research in New York City.

He became our second President in 1934 and was a Director until his death in 1945. His legacy comprises the years of council he gave to our Association. His service covered Journal affairs, including many published items. He was active in meeting and exhibition arrangements, in financial and membership details, fellowship qualifications, department layout, and several technical advances.



This is the group that attended the first meeting in 1931. It has not been possible to identify all of the people. Reading from left to right, *front row*: Herbert Ingram, Karl Foesten, James D. Dunlop, Carl D. Clarke, Heinz Rosenberger, —, Max Poser. *Second row*: Ralph P. Creer (sorry Ralph, that's the way the print came),

Wendell E. James, Philip Batchelder, —, —, Louis Schmidt, Stella Zimmer, E. Applebaum, Katherine Kingsbury, Alice Thing; *Back row*: A. Bradley Soule, Jean Kieffer, E. H. Mathes, —, —, Joseph Haulenbeek, Julian Carlile, Eleanor Cooper, Theodore Nelcey, Marian Rowell, Leuman Waugh.

He organized the New York Chapter in 1934 and he encouraged the formation of a Chicago Chapter in that year, under Ralph Creer, who had just moved to that city.

In 1939, Louis Schmidt was the BPA representative at the American Standards Association meeting on photographic standards. With the imminence of war in 1940, he offered BPA cooperation to the Surgeon General.

Our Annual Progress Award, initiated in 1948, was changed to the Louis Schmidt Award in 1953—a fitting tribute to a dedicated man and to its recipients, who helped to carry on his endeavors to better biophotography.

It was to Louis Schmidt in 1931 that Ralph Creer came for advice on founding BPA. Creer had just been appointed to the position of photographer in charge of the Division of Photography at Yale School of Medicine. He had the novel idea that laboratory secrets should be shared. Each time he wrestled with a technical or an administrative problem he wondered whether someone else already had a good answer. He felt that biophotographers could reap mutual progress by getting together.

He visited the departments of some of Schmidt's former students. With their help and through diverse means, Creer prepared a list of biophotographers. They were principally from the East. He invited them by mail to a meeting he had arranged in the Sterling Hall of Medicine in New Haven, for Friday, September 11, 1931. The session was for "Men interested in photography as applied to scientific research." (It turned out that six of the "men" proved to be women.)

By mid-morning, only 15 people had shown up—and these included the program speakers from the Bausch and Lomb Optical Company, the Eastman Kodak Company, the Zeiss Company, and institutions like Columbia University and the Rockefeller Institute. That was discouraging—until the morning train from New York pulled in late. On it was Louis Schmidt with an entourage of about 20.

In his opening remarks before the program began, Creer presented his ideas and proposed that those present think of the possibility of working out some way to implement them. An undercurrent of positive reaction seemed to be astir. So Herbert Ingram, x-ray and photographic technical representative of the Eastman Kodak Company, spontaneously rose and proposed the formation of an association to carry out Creer's aims. He suggested that Creer be the first head of such a group. Ingram's motions were seconded and passed. The first business meeting of what was to become a new organization was called for Saturday, September 12, 1931—the day after what turned out to have been the first Annual Meeting of the Biological Photographic Association.

The name was carefully considered. Because of the technical similarities in the photography done by those working in medicine and the natural sciences, "biological" was chosen as a broad key word for indicating the disciplines in which the group worked. While the majority of them, and of subsequent members, were in the fields of the healing arts, there have been notable natural science photographers present from the start. Programs, papers, and exhibitions have always encompassed the broad aspects of biophotography.

It is interesting to note that C. Graham Eddy was credited with having coined the term "biophotography." This was acknowledged in his citation (1955) for the Louis Schmidt Award.

Back in 1931 at that first business meeting, a tentative constitution was worked out. An executive committee consisting of officers and directors was constituted. Plans for a unique journal were discussed among some of those selected.

Executive meetings were held in New York City, November 1931, March 1932, June 1932, and July 1932. By that time the nature, direction, and operation of BPA were well established. Some technical demonstrations were made at the March meeting, which attracted local photographers not on the Committee. That session could be called the forerunner of our regional meetings.

The first members to undertake the guidance of BPA were:

**President**—*Ralph Creer*, Division of Photography, School of Medicine, Yale University

**Vice-President**—*Carl D. Clarke*, Department of Art and Photography, School of Medicine, University of Maryland

**Secretary/Treasurer**—*Theodore J. Nelcey*, School of Medicine, Yale University

**Directors**—*Louis Schmidt*, 1931–1934, Illustration Division, Rockefeller Institute for Medical Research; *A. Bradley Soule, Jr., M.D.*, 1931–1933, Department of Pathology, College of Medicine, University of Vermont; *Stella Zimmer*, 1931–1932, College of Medicine, Syracuse University

In 1932 Nelcey resigned in favor of Eleanor Cooper, Department of Photography, School of Medicine, Yale University, as Secretary and Katherine Kingsbury, School of Dental and Oral Surgery, Columbia University, as Treasurer.

Of those attending the first meeting, 21 joined and become charter members. By the end of the year, 23 more were added to the charter list.

## THE JOURNAL

The early course of the BPA can be plotted parallel to the precarious route of the Journal. The usual sequence of events for a successful association, especially in those days, was: form, meet a few times, circulate a mimeographed news letter and calendar, add some technical notes to the news letter, and after a few years, establish a journal. It was a bold step, then, for BPA to start publishing a full-format, printed Journal in its first year. It was, too, a fortuitous one, because the Journal not only provided the connective tissue to hold the Association together but also the soma that maintained our autonomy. The BPA Journal was too specialized in topic and illustration for BPA to join with or absorb other photographic groups. This has been one of the factors over the years that has influenced BPA to go it alone.

To support a journal was not easy. Throughout the entire history of BPA runs the problem of sustaining the Journal. Carl Clarke did not know what he was getting into when he offered to manage and edit our publication. To his credit it must be recorded that he put money, ink, sweat, and tears into the project. He did not let go for several years. Then, the membership carried the Journal, and it became strong enough to survive on its own recognized merits.

Clarke was an entrepreneur. Some training in medical art, combined with his experience as a general photographer, had prompted him to convince authorities at the University of Maryland in Baltimore that they needed a photographic department. He broke down their doubts about the necessity of such a service when he told them he would finance and run it if they would allot him rent-free space. It was so successful that they bought him out at the end of five years.

He was able to sell the Williams and Wilkins Company on publishing our Journal—logical because they had brought out several fine books on medicine. It was thought that income from advertising and the world-wide sales to non-members would yield a profit. This would pay the printer, provide some funds for BPA, and give Clarke dividends on his investment.

Our Board deemed the plan to be over-optimistic, but agreed to try out the scheme because it would give BPA the outlet it wanted. To start the enterprise, members would pay two dollars from their dues, leaving the remaining one dollar for running the Association. However, the publishing income did not live up to expectations. In 1938 the publisher asked to be relieved of the contract. BPA reimbursed Clarke for his remaining deficit. From then on the Editors arranged for various printers, and BPA assumed the function of publisher.

## EARLY MEMBERS

The first few years brought many members to the fore whose long-term influence has molded our Association. It is not possible to incorporate here the biographies of all who have left their mark. However, the accomplishments of those who carried BPA through its first five years are summarized. This will indicate the kind of action that is needed to meld such a group. While many are inactive today, recognition here of their efforts will show present members the reason why many of their names are still carried on Fellowship and periodic award lists in the Journal. New members will be able to gauge what they should be willing to do if they would aspire to BPA leadership.

First, we can consider the leading charter members. Ralph Creer has remained active in BPA affairs over the longest period the Association has seen. He not only affected its course internally, but also brought influence and prestige from those who utilized the services of BPA members. He moved to the Veterans Administration Hospital at Hines, Illinois, in 1933. This was close enough to Chicago for him to become a factor in a Chapter there.

He delivered the first paper ever invited by the American Medical Association from a medical photographer—"The Relation of Photography to Medicine," San Francisco, 1938. He consulted with the Surgeon General regarding military medical photography and joined the Army Medical Museum in 1942. He left as Major Creer, after activating the MAMAS—the Museum and Medical Arts Service—in which many BPA members were trained and served. Following the war he advanced the idea of establishing photographic units in the hospitals of the Veterans Administration. Graham Eddy was selected to implement the proposal, and Creer served as a consultant. Later, Creer became associated with the American Medical Association headquarters, where he guided policies and procedures regarding the applications of photography and cinematography in medical education and communication.

Ralph Creer was able to advance BPA prestige in many national and international circles. He became supervising editor for a series of books on medical photography for Charles C. Thomas Publishers. Leonard Julin, Stanley McComb, Leo Massopust, Peter Hansell, and I were BPA authors. He provided liaison between the AMA and other professional organizations.

To share the honors for long service, Stella Zimmer must be spotlighted. She was at the first meeting and has attended and worked on more business and technical meetings than any other member. Circumstances influenced her in deciding to change her



Eleanor Cooper between Ralph Creer and Louis Schmidt, taken from a group photo made at the March, 1932, business meeting.

career as x-ray technician to that of medical photographer. But where were the schools of medical photography in the 1930's? Her determination uncovered several leads to the only promising source of instruction—the informal sessions in the department of Louis Schmidt. After six weeks there she came back to Syracuse University and started a photographic unit. She became expert in photography and photomicrography. She was one of our first Directors and was our Treasurer from 1935 to 1951. As a Board Member until 1955, she has been a steady and connective influence for many years before and after that date. During our shake-down years, fiscal affairs were rather erratic. She unraveled the details in her reports, which were often received at Annual Meetings with acclaim. During any such period, exigencies of the moment overshadow the desirability of keeping and organizing written and photographic records for historical purposes. Her diligence led to the formation and her chairmanship of the Historical Committee—a post which she held until 1966. Then her records, along with those collected by Anne Shiras, were turned over to Albert Levin, who is the present custodian of the archives.

It was Dr. Leuman Waugh, of the School of Dental and Oral Surgery, Columbia University, who was Chairman of the Constitution Committee. The complete text was published in 1934. No time was lost before shaping other aspects of the Association. A precursor of our regional technical meetings was arranged by Louis Schmidt, Katherine Kingsbury, and Joseph Haulenbeek in New York City, March 1932. The Executive Committee met at the same time. The Second Annual Meeting was planned.

A colleague of Herbert Ingram, Arthur Fuchs of the Eastman Kodak Company, was a member of the first Editorial Board. He continued for several years as adviser, contributor, and a procurer of papers. He was Program Chairman for the Third Annual Meeting and active in several others. During the war he taught in the Army X-ray School at Walter Reed Hospital. He wrote a resumé on military medical photography. As Editor of Kodak's "Medical Radiography and Photography," assisted by Adrian TerLouw, he was able to advance the appreciation of medical photography and BPA's part in it. Fuchs was in the first group of Fellows cited in 1946.

Also in Rochester, New York, there was Merwyn C. Orser. In 1928 he had helped to form a photographic and photomicrographic laboratory at the Strong Memorial Hospital of the University of Rochester School of Medicine and Dentistry. Early experiments with infrared plates were made by him. He was a willing

adviser to Kodak personnel on the requirements for recording clinical conditions and pathological tissue specimens.

Rochester, Minnesota, too, was the scene of much BPA activity. Leonard Julin, a former portrait, commercial, and aerial photographer, brought the prestige and backing of the Mayo Clinic, where he was to become head of the Section of Photography. An accomplished and versatile photographer, he too, included infrared investigations in his activities. He was quick to realize the benefits of 16 mm cinematography and produced hundreds of surgical films.

He made many personal and written contributions to BPA and to biophotography. In order to relieve his photographers from much waiting time in the operating room, he designed an aseptic surgical camera that could be manipulated by the medical staff. (It was later marketed as the Waters Surgical Camera.)

Like many of our members he made photographic illustrations for definitive books—in his case, "Traumatic Injuries of Facial Bones," compiled by the Mayo Clinic and published in collaboration with the Bureau of Medicine of the United States Navy. The excellent illustrations in his book received widespread acclaim.

Leonard Julin established one of the leading medical photographic departments in the country, and an enviable rapport and reputation among physicians and educators. He served the Mayo Clinic from 1928 to 1967, and the BPA for 18 years as Director, Vice-President, President, and Board Member.

Then there was Jean Kieffer whose interests were radiographic as well as photographic. He built the first x-ray laminograph in the United States for the study of pulmonary tuberculosis. He worked on the early Constitution Committee, the Editorial Board, and the Motion Picture Committee. He was elected to the Board of Directors three times for 9 years of service.

Roger P. Loveland, of the Eastman Kodak Company, was one of BPA's main sources of information on photomicrography for several years. In 1970 he wrote for John Wiley and Sons a definitive, 1000-page, two-volume opus on the topic. He did some early work on standardizing the quality of biomedical illustration.



Anne Shiras, taken from a group picture made at the 1947 Annual Meeting in Rochester, NY.

Another eminent contributor to photomicrography was Oscar W. Richards. As a professor of biology at Yale University and later of the Spencer Lens Company, his photographic work covered the broad biological interests of BPA. He helped us to keep up to date in advances like phase photomicrography. He was an early advocate of 16 mm cinematography in research and, hence, a logical Chairman of our Motion Picture Committee. He was elected President in 1949. He served many years on our Board. For outstanding work in the field of microscopy he was made a Fellow of the Royal Microscopical Society in 1968.

Julian Carlile, of the Rockefeller Institute for Medical Research (plant and animal fields, at Princeton, New Jersey), was one of the first to prepare an album that could be circulated among members. He pioneered the photomicrography of living specimens with photoflash illumination. He was a Director from 1945 to 1949.

Heinz Rosenberger (later Henry Roger) was an instrument maker. He contributed several highly technical papers describing equipment he developed and its applications in cinematography, particularly of the eye. In 1952, Roger was given a certificate of merit by the Freedoms Foundation of Valley Forge for his motion picture "Telephone Pioneers." This is an example of the contributions that many BPA'ers make that lie outside of their vocational activities.

Four charter members are still on our roster—Ralph Creer, Henry Roger, Oscar Richards, and Stella Zimmer. The dedication of many who joined within the first five years also deserves study. There was William J. Taylor (1932) of Temple University Medical Center. He was elected Director that year. As Salon Chairman in 1938, he demonstrated his interest in producing prints of high quality. In 1947, after a tour of duty in the armed services, he was named to the Leonard Wood Memorial Committee on Photography of the American Leprosy Foundation. With his colleagues Charles G. Brownell of the Eastman Kodak Company, Ralph Creer, Leonard Julin, and me, simple methods of lighting and positioning for yielding standardized photographs of patients with Hansen's disease were worked out. Taylor then field-tested them in Carville, Louisiana. Thereby it was possible to make comparable research records of the efficacy of new drugs in leprosia all over the world.

It is impossible to think of BPA and not think of Anne Shiras (1933), University of Pittsburgh Medical School. As Secretary until 1949, she was a strong factor in the continuity of our affairs. She compiled valuable membership data for the use of various committees. Apart from Association matters, she was a fountain of information for members and non-members about BPA and served as an exchange agent for technical biophotographic queries.

She was appointed by Leo Massopust to the Editorial Board in 1938 and took over the writing of our news column. She and Albert Levin (1937), of the Montefiore Hospital in Pittsburgh, collected and hung a BPA exhibit for the 1942 AMA Meeting and for several subsequent conventions. In staffing the exhibits they became our ambassadors to the medical profession. For these activities they were helped by Leonard Julin and Stanley McComb. These efforts not only gained new members—the 1942 booth enabled us to add 30 to our roster—but also stimulated interest in the value of medical photography.

Anne helped to plan our own Annual Meetings. Other committee work included cooperation with Lloyd Varden on constitutional revisions in our voting procedures. She headed our Admissions Committee in 1948 and was on the Nominating Committee in 1950.



Leo C. Massopust, photographer, artist, anatomist, author, long-time editor, BPA President.

In that year she extended our friendship to medical groups during a vacation in Great Britain, renewing acquaintance with Dr. Peter Hansell and other leading scientific photographers there. This sowed the seed of cooperation with BPA in ground broken by Dr. Hansell on his visit here in 1948.

In 1950 she retired from her photographic activities at Magee Hospital in Pittsburgh after 18 years. She had been particularly proficient in pathological and anatomical illustration, and was one of those privileged to have been a protégée of Louis Schmidt. Her last official service to the BPA Board was her directorship to 1951, but she stayed on as Secretary to the Fellowship Committee for some time.

She still graces our Annual Meetings with her presence. This has not been a passive attendance, for she was the delegate from Western Pennsylvania to the first meeting of the House of Delegates in 1965. She was chosen Chairman of the House's Merit and Award Committee. Her place as a delegate was taken, after three years, by Lester Heitlinger, now at the VA Hospital in Tampa, Florida.

Anne now continues her avocation in the fields of education and linguistics.

In the vanguard of the natural science members was Sam Dunton (joined 1933). He pioneered fish photography at the New York Aquarium with some of the earliest photoflash lamps. His work included the photography of gross specimens and here he was helped by visits to the laboratory of Louis Schmidt. Later he directed the photographic activities of the New York Zoological Park. He made many outstanding animal pictures during his career. He was a generous source of information on biological photography and contributed several Journal papers up to 1963.

In 1933, Ferdinand Harding, of the Childrens' Hospital in Boston, became active on the Journal. He was a prolific source of papers and notes on special techniques and described new equipment for many years. Besides being the first Chairman of the Boston Chapter he was a BPA Director, Vice-president, and President. He initiated the Fellowship Committee and strengthened BPA's involvement with standards and education. Harding stayed active for many years. He worked with the Navy during the war. As late as 1967 he contributed a fine paper for the Journal.

William L. M. Martinsen (1933), of the Chicago Municipal Tuberculosis Sanitarium, was the first BPA member in Chicago. He and Ralph Creer organized a Chicago Chapter, and Martinsen was the first Chairman. He was elected a BPA Director in 1938. He contributed several technical papers to the Journal dealing with gross specimens and stereophotography. In conducting the first BPA survey for determining the status, management, and needs of biophotographic departments in 1940 and publishing the results, he laid the ground work for many aspects of post-war progress. In 1966 he compiled the first major, separately printed, cumulative index of BPA papers. It contained data on BPA and member activities as well as an organized bibliography. He brought the index up to date in 1971.

The years that Leo C. Massopust (1933), of Marquette University School of Medicine, gave to our Journal mark an outstanding service. He produced 81 issues before becoming Editor Emeritus in 1967. His background in art and in portrait and landscape photography, coupled with his profession in anatomic research, resulted in a Journal of noteworthy quality. He applied photography not only to illustrating anatomy, but also to further his investigations. He did extensive work on the infrared mapping of venous patterns, including studies of the venation changes in the female breast. It was found that, while breast patterns could be grouped according to basic arrays, no two women are alike. A "normal" pattern could not be defined. However, certain characteristics were found that could suggest the presence of tumors. He published a book (1952) with Charles C. Thomas on his contributions to infrared biophotography. In that year, too, Leo illustrated "Basic Biology of Man" by Professor Tallmadge of Marquette.

At the 1942 Convention of the AMA he and Dr. Eben J. Carey won a gold medal for individual research on the ameboid motion of motor nerve end plates. This work was done in connection with infantile paralysis, myasthenia, and other paralytic diseases. They showed what was then the most revealing photomicrographs of these nerve endings that had ever been made.

Leo Massopust became influential in establishing standards for photographic illustration and sat on juries for BPA Exhibitions. As Editor he served on the Board. He was our President in 1958 and 1959. He won the first Annual Progress Award in 1948 and started the committee that was to deal with subsequent recipients.

BPA members were not ungrateful for his services and for the prestige he brought the Association. Volume 35, Number 3, 1957, of the Journal was issued as a "Massopust Festschrift." It contained his biography, a bibliography of his published contributions, and a special article on infrared photography.

Leo was loyal to BPA until his death in 1970.

Two early members from Europe merit special note—H. M. Dekking (1934) of the Eye Clinic, Nymegen, Holland and Silvester Prát (1935) from the Laboratory of Plant Physiology, Praha, Czechoslovakia. Both were contributors to our Journal. Dr. Dekking's paper on eye photography is still a definitive one; so is his atlas on eye diseases. Dr. Prát did much plant research and was also a

lover of nature, for he included a book "Příběhy Kaštanu" [The Story of the Chestnut] among his works. They were both pioneers in applying infrared photography in their fields.

Another authority on the conventional and infrared photography of plants was Louis Paul Flory (1934) of the Boyce Thompson Institute for Plant Research, Yonkers, New York. From the chairmanship of the New York Chapter in 1934 he went on to the BPA Board as a Director, and then was Vice-president for two years. He was not in a position to accept the Presidency, but resumed his work on the Board as a member of the Publication Committee, editing our Journal for a year.

In 1958 he served on a BPA committee to work out details for the first certificate in photography to be awarded by the AMA in their annual scientific exhibit, a new feature for their convention. He judged some of their presentations. Our early efforts in certification involved his participation. In 1951 he assumed responsibilities in the Medical Illustration Staff of the Central Office of the Veterans Administration in Washington, and later became its head.

Important early work on the Journal was done by Arthur Proetz, M.D. (1936). He started his suggestions in 1936 as a member of the Editorial Board. A Director for nine years, and then a member of the Editorial Board again, he spent 20 years advancing the quality and usefulness of our publication. He wrote several "Chats with the Editor" and several technical papers. He was noted for his time-lapse cinematography of ciliated epithelium in his field of otolaryngology. Serving on our Public Relations Committee, he was instrumental in obtaining space for BPA booths at conventions of the American Academy of Ophthalmology and Otolaryngology. In 1951 he received the deRoaldes Gold Medal, the World's Highest honor in laryngology. His contributions to education and his work in the BPA were items in the citation.

He was as compatible as he was energetic, and was toastmaster for several of our Annual Meetings. We made him a Fellow at our first convocation in 1946.

Another long-term worker for BPA was Stanley McComb (1936) of the Mayo Clinic Section of Photography. He was a keen early proponent of using color slides in medical communication and education, and wrote papers on the topic. He collaborated with Leonard Julin for the book "Traumatic Injuries of the Facial Bones."

As Vice-president he was Chairman of Harding's Curriculum Committee, and he instituted some of the first steps in our action for training medical photographers. While President he worked with Tom Jones of the Association of Medical Illustrators and started a cooperation with that group which is still in effect. He continued our liaisons between the AMA and the Surgeon General.

He was a persistent advocate for high quality in photographic illustration and reproduction. He wrote a paper on preparing prints for publication in the then new "Postgraduate Medicine" (1947), Volume 2, Number 6). For Charles C. Thomas, in 1950, he prepared a book on the subject.

Being open to new ideas, he supported my proposal to make the BPA Salon at the 1947 Annual Meeting an International one. This was successfully done. After his term as President, his work on the Board included chairing the Fellowship Committee. In 1962 he received the Louis Schmidt Award. In that year, too, he was made the chief of the Section of Photography upon the retirement of Leonard Julin. When he retired in 1970, he was elected to carry on as Secretary and Treasurer for BPA. In 1972 he was asked to assume the duties of Executive Secretary—a post that was constituted in our third era.

Henry Morris (1935), of the Department of Pathology at the University of Minnesota, was one of our Directors. For three years (1908 to 1910) he had spent half of his time per month as a photographer for the Mayo Clinic. Because of his experiences as a photographer in the 1914–18 war, he was asked by Louis Schmidt, in 1939, to prepare a resolution for the Surgeon General, offering the cooperation of the BPA in organizing a photographic branch for the United States Army. He was active as Vice-president for two years. But, because of his distant location, further attendance at business meetings was not practical, so he declined the nomination for the Presidency. Yet he kept active in our Association. For example, in 1959 he was guest speaker at the First Annual Midwestern Sectional Meeting in Iowa City, and outlined for the encouragement of potential new members the progress made by BPA.

Among the members who aided the growth of our Association was H. W. Zieler (1935) of E. Leitz, New York. He made technical contributions in photomicrography and stereophotography with the then relatively uncommon miniature camera. He was active in running the New York Chapter. He shared his expertise enthusiastically and willingly at Chapter and Association meetings.

Florence Coe (1935) worked on our project involving the circulation of albums of representative photos made by our members as a means for interchanging ideas and methods. She had this responsibility until 1942.

H. S. Hayden (1936), of the newly formed bicultural Institut Neurologique de Montréal, McGill University, was an early Canadian member. For our Journal, in 1937, he described an amazing 8 × 10 inch camera with a 40-inch telephone lens. It was built into an alcove below the spectators' gallery of one of the operating rooms. This "photographer's room" was isolated from the surgery because the camera was aimed up through a window at a chro-luminum mirror. The surgical lamps and auxiliary photographic units provided the illumination. The camera is still in use today to document the sophisticated brain surgery and research carried out by the staff. Because the back of this long camera is close to the floor, this is the only known setup in which both the patient and the photographer have to lie down.

Harris B. Tuttle (1936), of the Eastman Kodak Company, was one of the mainstays for technical information on the relatively new 16 mm cinematography. He contributed several papers on the subject and judged cine entries on the occasions of several Annual Salons. He served a stint on the Editorial Board. Membership drives have been perennial activities for BPA. Tuttle gave valuable support in this respect. The first five-day BPA Annual Meeting was the 26th—held in Rochester, 1956. He was on the local Committee.

Robert A. Sage (1936), of the Iowa Methodist Hospital in Des Moines, was largely interested in schools for training biophotographers. In 1941 he went to Baylor University in Dallas and later to Southwestern University there, where he joined the Department of Art and Photography. A course in medical art was started and the photographic facility was enlarged so that some photographic experience could be provided.

Sage continued to be concerned with photographic instruction. His experience was helpful in our second era, when our educational activities burgeoned.

He wrote BPA papers on equipment, on the stereophotography of patients, and on legible lettering for lantern slides. With a colleague he developed the Weingart-Sage stereo camera.

Many others have furthered the progress of BPA besides those who joined in the first five years. It is not practical to go into as much detail regarding their careers. Their efforts can be deduced, though,

in connection with the discussions of the accomplishments of later Boards and Committees, or of the services, Journal papers, and projects with which they were involved. Whenever possible, their affiliations are stated. When none is given, that usually indicates that the member worked as a private individual.

## ORGANIZATION

The organizational structure of BPA was fashioned to meet the requirements of the people who joined, and also to meet the desires of their employers and clients. Officers and Directors were constituted at the start as a Governing Board, and their numbers and duties were modified as time went on. Committees were formed as the need arose. As the number of members increased and their geographic distribution expanded, Chapters were initiated.

### Membership Factors

A cross section of the membership today would look quite like that of the first few years. But now there would be a denser matrix of those with formal education in biophotography and fewer, part-time paramedical photographers. Also, some of the connective tissue would be more sharply defined. For example, biophotographers have always been "communicators;" but in the last few years that function has emerged as a distinct layer encapsulating the technical nucleus.

Anne Shiras studied the first-year membership in 1932. She made the following analysis:

|   | Percent |
|---|---------|
| Full-time biophotographers                                | 42      |
| Part-time technical photographers                         | 19      |
| Medical and dental professionals                          | 21      |
| Natural science professionals                             | 5       |
| Commercial photographers and those with unreported status | 13      |
| Her 1949 analysis was:                                    |         |
| Full-time medical and dental photographers                | 32      |
| Full-time natural science photographers                   | 1       |
| Pan-departmental university photographers                 | 1       |
| Part-time technician photographers                        | 5       |
| Medical and dental professionals                          | 32      |
| Natural science professionals                             | 11      |
| Directors of visual education                             | 5       |
| Commercial and free-lance photographers                   | 12      |
| Sustaining, library, etc. members                         | 1       |

Ten percent of the 1949 members were women.

While the 1932 biophotographers were not classified as to medical, dental, or natural science activity, there was certainly a higher proportion of natural science photographers than indicated by the 1949 ratio of 32 to 1. One of the disappointments BPA has felt over the years is its inability to attract more photographers from the natural sciences.

Another point—it is likely that today the proportion of professionals doing their own photography may be lower. It is important to realize that these are *membership* figures, and it should not be construed that the professionals listed above are all members who practiced biophotography. They may have joined to receive the Journal and to support some of our projects.

Another breakdown of the 1932 membership shows that it was drawn from 25 states (60 percent New England and Middle Atlantic), Washington, D.C., Canada, and Mexico. In 1933 more states were added, as well as Czechoslovakia. Denmark, France, and Holland were represented in 1934. It is apparent that BPA was destined to become an international organization from the start. Today (1981) we have about 110 Canadians and members in 14 other countries. Members come from all of the United States. The Journal goes to 22 countries.

The Constitution and By-laws appeared in Volume 2, No. 4, 1934. The aims of the group were expressed in this way:

"The object of this association shall be to further the study of photography in relation to the biologic sciences, and improve its technique."

Then three classes of membership were defined—

"*Active*, anyone whose professional duties include photography of biological subjects shall be eligible to achieve membership and shall be entitled to all privileges of the Association.

"*Associate*, all others who are interested in such photography shall be eligible for associate membership. They shall have all privileges of the Association except to vote or hold office.

"*Honorary* membership shall consist of persons who are eminent in the collateral sciences and who have made constructive contributions to the art and science of photography. They shall have all privileges of the Association except to vote or hold office."

Application for active and associate membership was made in writing to an Executive Committee. It had to be endorsed by two active members, or (quite necessary in those days because active members were not widely distributed) accompanied by two letters of recommendation from professional members of an established institution. Honorary membership was granted by the Board, and around 1946 it was called "Honorary Fellowship," because it was not necessary to be a member to receive the honor.

There was never any personal restriction to membership. However, an Executive Committee, and later an Admissions Committee, reserved the right to accept a prospective member only on the basis of a 2/3 favorable vote of the Governing Board. This was done to provide a diplomatic mechanism for barring anyone known to have exhibited unprofessional conduct. It is interesting to note that there has never been occasion to invoke this rule.

Some early consideration was given to classifying doctors, professors, radiographers, and artists as "Associates." However, the idea was dropped because it was felt that the individuals were the best judge of the amount of photography they performed. In 1947 constitutional amendments eliminated this associate category in favor of "Active" status.

Fellowships and Honorary Fellowships were formalized around that time. A "Sustaining Membership" was introduced as a non-individual category for companies and institutions. Active members who wished to help BPA by paying more than their dues were listed as "Contributing Members." These changes and others concerning dues and Chapters appeared in the 1962 version of the Constitution and ByLaws.

Honorary Life Membership was first granted in 1938 to Louis Schmidt by the Board, and to Jane Waters Crouch in 1964. This honor has since been given to several others "for long time mem-



bership and service to BPA." In general, it recognizes those who are professionally retired but still active in BPA. The designation is now "Active Member—Emeritus."

Fellowships are granted active members of five years and with ten years consecutive experience, who have exhibited superior craftsmanship, or who have made significant contributions to photographic research. In the past, meritorious service to BPA or other biophotographic organizations has been recognized. Instituting a life membership for \$200 was once tried as a fund-raising device. The idea did not prove successful.

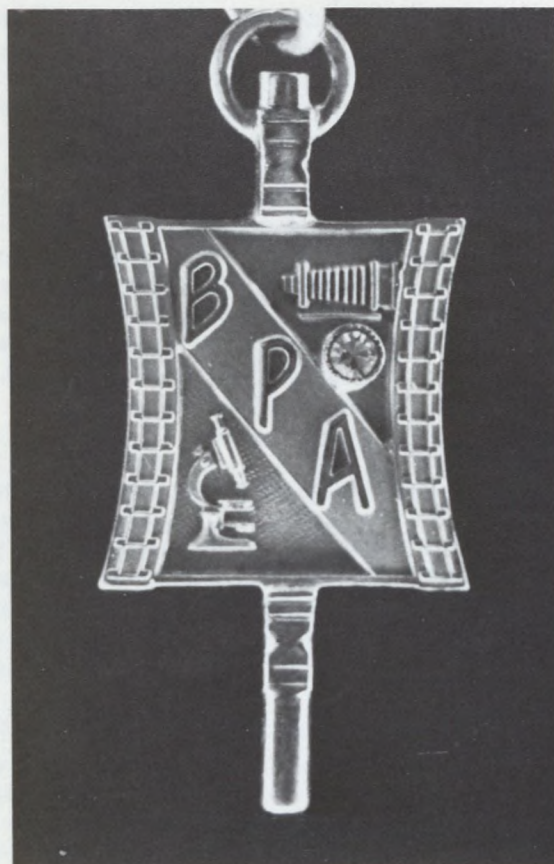
Non-members can be recognized on an honorary basis. For example, Tom Jones, Professor of Medical Illustration at the University of Illinois School of Medicine and Dentistry, read a paper in his field to BPA in 1935. Over the years he made other personal and written contributions. He received the Honorary Fellowship in 1961. Then there was Earl Weeks, Vice-president and Director of Hammersmith-Kortmeyer Incorporated, who personally looked after the printing by his firm of our Journal. He supervised its production for about 20 years. He found methods of reducing costs and yet maintain quality. His courtesy and attention lightened the loads of our editors. He well deserved our Honorary Fellowship in 1962.

The President's Service Award was initiated in 1976, in lieu of the honorary fellowship for non-technical achievement. It is for: "Meritorious Continuous Service to the Biological Association." It carries the same prestige as the Fellowship, and may be given once during a President's two-year term. To act in an advisory capacity, a committee is formed during the President's first year of tenure, and is comprized as follows: two Board Members, two members from the House of Delegates, and the Clerk of the House. Percy W. Brooks and John P. Vetter were the first recipients in 1977.

The following is the list of the first Fellows. They were convocated in 1946. The stature of the recipients can be appreciated from the accounts of their activities recounted in this history of our first era.

|                         |                      |
|-------------------------|----------------------|
| Julian A. Carlile       | Stanley J. McComb    |
| Ralph Creer             | Henry W. Morris      |
| C. Graham Eddy          | William F. Payne     |
| Louis P. Flory          | Leonard L. Perskie   |
| Arthur W. Fuchs         | Dr. Adriannus Pijper |
| Edward N. Hamilton      | Dr. Arthur W. Proetz |
| Ferdinand R. Harding    | Oscar W. Richards    |
| Joseph B. Haulenbeek    | Henry Roger          |
| Nathan S. Horton        | George L. Royer      |
| Leonard A. Julin        | Frank M. Ruslander   |
| Jean Kieffer            | Albert Sadler        |
| Albert Levin            | Robert A. Sage       |
| Roger P. Loveland       | Anne Shiras          |
| Adolph Marfaing         | Arthur L. Smith      |
| William L. M. Martinsen | William J. Taylor    |
| Leo C. Massopust        | Lloyd E. Varden      |
| John A. Maurer          | Stella Zimmer        |

After five years all members are entitled to wear the BPA key. This was designed in 1948 by Dr. Edmund J. Farris and Harold Baitz, of the Wistar Institute.



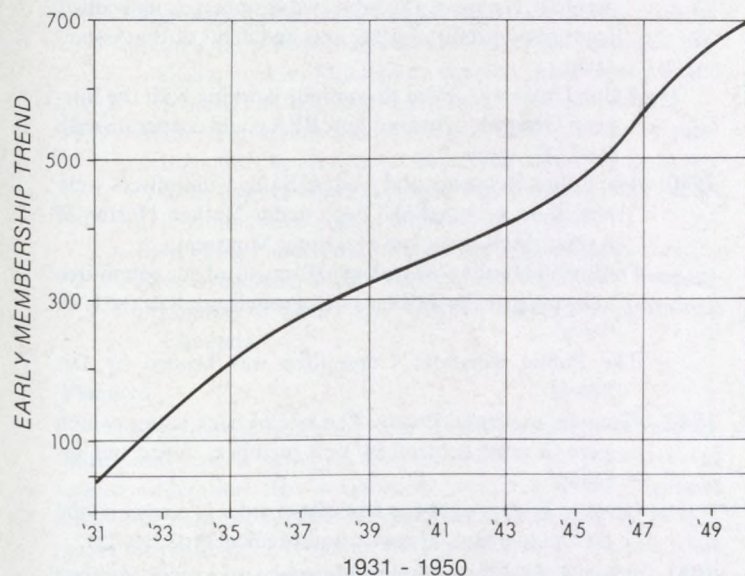
The BPA Pin. The diamond is inserted for the Louis Schmidt Award recipients.

### Fiscal Matters

Membership dues have been tied to the Journal costs. At first the sum was \$3, two of which were allotted to the Journal. Committee expenses, secretarial supplies, and funds for services and Annual Meetings were covered by the remainder. As these and printing expenses went up over the years, there was a constant struggle to avoid operating in the red. Membership dues and the subscription rate for the Journal were the same. In 1947 the figure was raised to \$5, but overseas postage made foreign rates fifty cents more. In 1955 the dues were raised to \$8.50, but those individuals not wishing to become active members, and also libraries, paid \$9 for the Journal. Printing costs for an improved Journal worthy of the professional and technical advances achieved made it necessary to raise the subscription to \$15 in 1970, \$20 in 1973, and to \$30 in 1979. Membership dues kept pace; \$20 in 1970, \$30 in 1973, and \$50 in 1979.

Historical review can help offset the despair these figures may instill. It staggers the mind to read that, in the announcements of early Annual Meetings, single rooms at the convention hotel were available at \$2 a day—the fee for the Journal. Today it is not possible to find a suitable room for the price of a Journal subscription, or even of full membership.

Another benefit of studying history is that the advantage of hindsight can be gained. The amount of the dues were specified in the first Constitution. Hence, every time we were forced to raise dues, we had to go tediously through amending the document. When it became evident that dues were going to be fluid, the figures were not specified in the 1962 ammendment. Instead, the amount was subject to review from year to year. It was to be set by a two-thirds



vote by the membership—attending an Annual Meeting or by mail ballot.

The publication of the *Journal* started on a July–June basis. The fiscal year paralleled this because the *Journal* was the first tangible benefit received by a new member. Upon joining at anytime within a fiscal year, back issues of the *Journal* for that year were sent the member. In essence he was counted as a member for that full year. In 1945 the period was changed to September–August. It had become hard to foresee the number of back issues needed to accommodate those who joined late in a fiscal year. Therefore, joining times and *Journal* dates were placed on a quarterly basis, starting in September.

However, it was still difficult to arrange the details of office holding, accounting, and assigning volume numbers to the *Journal* for bibliographic and library purposes. So in 1950, both membership and *Journal* were placed on an annual, January–December basis. Anyone doing further research on BPA or the *Journal* ought to keep these changes in mind. As a matter of fact, it was impossible for me to give exact yearly membership figures. The graph shows the trend of early BPA growth. In spite of an extensive turnover in the first few years there has always been a net upward trend—toward the 1400 members we have today. It was evident that BPA was fulfilling a need.

The major lesson learned in those years was just that. It was necessary to fulfill the needs in order to grow. We conducted many membership drives. Schmidt, Haulenbeek, and Tuttle were notable in their efforts. We found that eloquent pleas would capture new members, but it took service to hold them.

#### The Board of Governors

The nature of the Board is indicated by the list of the first members of the Executive Committee given previously. New Directors were elected to serve three years, once the original succession was established. Officers were nominated and voted in each year.

Changes were made gradually, so by the time the 1962 Constitution was effected, the Executive Committee had become the Board of Governors. Then, this consisted of the Officers, eight Directors, the three most recent past Presidents, and the Editor of the *Journal*. Later changes were made to accommodate Chapters and Delegates. The Vice-president and President were to serve only two

## BPA Officers—1931 to 1951

### President

|                          | Years     |
|--------------------------|-----------|
| Ralph P. Creer           | 1931–1934 |
| Louis Schmidt            | 1934–1940 |
| Leonard A. Julin         | 1940–1942 |
| Ferdinand R. Harding     | 1942–1945 |
| Stanley J. McComb        | 1945–1947 |
| Edmond J. Farris, Ph.D.  | 1947–1949 |
| Oscar W. Richards, Ph.D. | 1950–1951 |

### Vice-President

|                   | Years     |
|-------------------|-----------|
| Carl D. Clarke    | 1931–1933 |
| Louis Schmidt     | 1933–1934 |
| Leonard Julin     | 1934–1937 |
| Leo Massopust     | 1937–1938 |
| William Payne     | 1938–1940 |
| Ferdinand Harding | 1940–1942 |
| Henry Morris      | 1942–1944 |
| Stanley McComb    | 1944–1946 |
| Louis P. Flory    | 1946–1948 |
| Oscar W. Richards | 1948–1950 |

### Secretary/Treasurer

|                                    | Years     |
|------------------------------------|-----------|
| Theodore J. Nelcey                 | 1931–1932 |
| Eleanor Cooper/Katherine Kingsbury | 1932–1933 |
| Anne Shiras/Katherine Kingsbury    | 1933–1934 |
| Anne Shiras/Samuel C. Dunton       | 1934–1935 |
| Anne Shiras/Stella Zimmer          | 1935–1949 |
| Lloyd E. Varden/Stella Zimmer      | 1949–1951 |
| Lloyd E. Varden/Albert Levin       | 1951–1952 |

years. It was tacitly agreed, but not mandated, that the Vice-president should prepare himself for and succeed to the Presidency. Accordingly, his nomination was automatic, but write-ins were invited. His major allocated responsibility was that of guiding those mounting Annual Meetings.

As a general rule, the Board conducted a Spring meeting and one at the time of the Annual Meeting. Reports from all the Officers and from standing and ad hoc committees were presented in person or in writing. Consultants were sometimes called in. Members were also allowed to attend; but because of the long gruelling hours involved, they seldom did. Only the Board members had the vote.

An Annual Business Meeting was held during the convention for all the members present. The actions of the Board were discussed in open forum. There have been no serious political battles in the history of BPA. Open discussions of problems and the hard work and stated positions of candidates influenced the Nominating Committees. Write-in and multiple-choice features made balloting fair. Nevertheless, Annual Business Meetings engendered many lively sessions, especially during the second era. The Association was firm enough to remain united.

Bids for hosting the Annual Meetings were advanced by Chapter groups, and voted at the Annual Business Meetings. In the third era, a House of Delegates was formed. They caucussed during the Annual Meeting and reported to the open forum.

It can be seen that Association affairs have been conducted on a broad basis. The Board's function was to advise and implement the activities of the Committees. But the Officers had the usual duties of budgeting and of recording minutes. In addition, the Secretary conducted a valuable clearing house for voluminous correspondence from members and public by answering many letters and referring complex technical queries to members of appropriate expertise.

The ramifications of BPA's growth can well be traced by the following chronological listing of some of the considerations of the Board that went beyond its routine duties.

- 1934—To balance the Journal content between technical and managerial information.
- To attract the interest of non-medical biophotographers.
  - To better reorganize the Journal to divide the tasks of procuring, editing, rewriting, and publishing papers.
  - To publicize BPA in appropriate technical and professional journals.
- 1935—Clarke pointed out that artists were given credits for their illustrations, but not photographers. Editors of books and journals were asked to change this and members were urged to request credits whenever possible. Salaries for biophotographers were found to range from \$1500 to \$2600 per year.
- 1936—Initiation fees were proposed but not adopted.
- 1937—As part of the printing changeover, about 1100 back issues of the Journal were bought for 15 cents a copy. Overruns had been stored by the previous publisher, who had hoped to sell them. (The subsequent sale of these copies helped the Association greatly.)
- 1938—Jean Kieffer and Oscar Richards were asked to investigate the mechanics of incorporation for BPA. (They were helped by the legal department of the Spencer Lens Company.)
- 1939—The incorporation in the State of New York was completed. This made BPA a body that could establish its own bank

account. The move also protected members as individuals from responsibility for the acts and debts of the Association.

- Ralph Creer was asked to continue working with the Surgeon General to find out how BPA could cooperate with the U.S. Army.
- 1940—The Public Relations and Annual Salon Committees were placed on a "standing" basis under Nathan Horton of Ayerst, McKenna, and Harrison, Montreal.
- Ferdinand Harding was asked to form an ad hoc committee to investigate the medical photographic needs of the U.S. Navy.
  - The Public Relations Committee was headed by Dr. Proetz.
- 1942—Finances improved slowly. The sale of back issues, which were in good demand by new members, aided our income.
- Graham Eddy resigned as Director in order to command the 1st Detachment, Museum and Medical Arts Service.
- 1943—It was decided that active members who were representatives of commercial concerns would be allowed to hold office and serve on the Board. This was done because experience to date had shown that they had comported themselves as colleagues and were active in making biophotographs. (Their names appeared on Board and Committee rosters in connection with many important aspects of our formation—Brownell, Butterfield, Foster, Fuchs, [Gibson, Ed.], Horton, LaRue, Perskie, Richards, Royer, Sturgis, Tuttle, Varden, and Zieler. The tradition continues today.)
- Dr. Proetz headed a Committee to consider a Fellowship program.
- 1944—Paul Flory was made the new BPA representative to the American Standards Association.
- Julian Carlile was appointed Director to replace Albert Levin, who went overseas with a medical photographic unit.
  - Albert Sadler, at the Seymour Hospital, Eloise, Michigan, investigated the civil service status of photographers.
- 1946—The decision to grant Fellowships was made. The first Fellows were selected by the Board and these recipients formulated subsequent procedures.
- Arthur Smith, of Cornell University Science Photography Laboratory, presented a revised questionnaire on status and activities to be sent to each member.
  - The editor was empowered to give BPA authors 40 tear-sheet separates of their articles.
- 1947—Anne Shiras, in connection with the BPA exhibit at the AMA Convention, was asked to circulate a questionnaire to publishers there. The purpose was to find out the chief illustration faults they encountered and what specifications they gave the photographers.
- William Payne, former Vice-president, was named chairman of a Financial Survey Committee to consider dues and other income.
- 1948—It was decided that individual members could not legally put BPA after their names, nor on stationary. But FBPA could be used.
- An anonymous award fund of \$1000 was accepted from "two friendly photographic manufacturers." (Awards are discussed further on.)

—Members served BPA without monetary recompense for their time. However, Miss Priewe, a non-member, Assistant to Leo Massopust, devoted many hours to the Journal and was accorded a monthly stipend of \$25.

1949—Arthur Smith presented the results of analyzing the questionnaires he and Anne Shiras had collected. Data was to be used to chart subsequent activities. (Their report is summarized under "Membership Factors.")

—Paul Flory's new format for the Journal was approved.

—Avis Gregerson, Lloyd Varden, and Dr. Royer were appointed to clarify and simplify regulations governing Chapters.

### Finances

The actions of the Board were also influenced by other committee and general activities described further on. But there was one consideration that periodically arose in Board Meetings only—the matter of grants. Graham Eddy, in particular, investigated the possibilities. However, BPA projects were relatively small and too unique to qualify. This was not without benefit, for BPA was forced to rely upon its own initiatives.

Early budget figures show that in 1936, with 250 members, we ran on \$1100 income from members and \$200 from advertising. The Journal was costing about \$1500 per volume. It should be noted that in 1950 advertising was stopped because the cost of getting and printing it was almost as much as the income derived from it. Once the original debts had been paid and the Association grew, the financial burdens became lighter for a while. Yet not long after the

war, costs for everything began to go up. The eternal race between income and outgo started all over again.

It is sobering to note that in 1978, with 1400 members, we had budgeted disbursements of \$81,089. The Journal cost \$32,624 for a volume of four issues.

### Chapters

It was realized in Board discussions as early as 1933 that, while widely dispersed members could gain from the Journal, not many could convene at an Annual Meeting. The New York Chapter was formed in 1934 under the Chairmanship of Francis Johlfs. When a member moved to a new region of the country he or she got in touch with local biophotographers—object, Chapter forming. Ralph Creer did this in 1934 when he moved to Chicago. The group met under the Chairmanship of William Martinsen. When Avis Gregerson left the Chicago Chapter for Los Angeles in 1946, she stimulated the founding of the Chapter there. Of course, other Chapters rose spontaneously from the efforts of key BPA members—Pittsburgh is a case in point. The tabulation on the overleaf charts the early Chapters.

Many more Chapters have been formed. In 1981 we listed 32. Three of these are in Canada—in Ottawa and Montreal, and a Lake Ontario Chapter is centered around Toronto. In the West, Canadian members are included in the American Pacific Northwest Chapter and some attended other western chapter meetings.

An interesting venture was begun by one of our members in India. K. M. Acharia founded a Chapter in Patiala—more about this later in the text.



This display was arranged by the Chicago Chapter through the efforts of Maria Elsasser Ikenberg. The occasion was the 1943 Convention of Ophthalmologists and Otolaryngologists.

## Early Chapters

| Year                                | Region        | Chairman                            | Secretary          |
|-------------------------------------|---------------|-------------------------------------|--------------------|
| 1934                                | New York City | Francis Johlfs                      | Paul Flory         |
| 1934                                | Chicago       | William Martinsen                   | Avis Gregerson     |
| 1935                                | Pittsburgh    | Chester Henry                       | Anne Shiras        |
| 1936                                | Boston        | E. P. Oxnard                        | Laurence Brown     |
| 1937                                | Philadelphia  | Dr. Melvin Dillman                  | R. Burton          |
| 1946                                | Los Angeles*  | Edward Hamilton†                    | Avis Gregerson     |
| 1946                                | Cleveland†    | David Lubin**                       | Mitchell Sieminski |
| 1948                                | West Virginia | Richard Crawford                    | Harvey E. Sturm    |
| * Later Southern California         |               | † Later Northern Ohio               |                    |
| † Lloyd Matlovsky, Program Chairman |               | ** William Stevenson, Vice-chairman |                    |

The Chapters were able to arrange local meetings. They circulated traveling exhibitions of biophotography to member and public groups. Cities with Chapters had the personnel and other facilities for conducting Annual Meetings. Also, when the BPA participated in the meetings of professional groups, there were members available to erect and attend the BAP exhibits. The valuable liaison extended by Anne Shiras at AMA conventions, and by Maria Ikenberg in Chicago, are instances.

The Chapters all had similar problems. At first, members explored each others' departments. Then they gave lectures in their special fields about techniques they had worked out. Before long, they used each other up. Monthly meetings became hard to arrange, but imported speakers sustained programs when travel was practical. Interest was renewed later by conducting one-day or two-day symposia at less frequent intervals. It was then feasible to plan a more elaborate program. Dutch-treat dinners at the sessions were often used to liven the meetings.

The war slowed down the activities. Then, when it was over, and as membership increased and technology became more complex, the need for professional interchange increased. Old Chapters were revitalized and new ones created. In 1947, a special committee to foster the formation of Chapters was appointed, with Avis Gregerson at its head. And in 1949, President Farris initiated the study of better Chapter regulations. George Royer of American Cyanamid Company, William Stevenson of the Mt. Sinai Hospital in Cleveland, Warren Sturgis of Sturgis-Grant Productions, and Lloyd Varden of Ansco were appointed to the task. Their recommendations were read at the 1949 Board Meeting.

There was no provision for Chapters in the first BPA Constitution and By-Laws. Hence, Chapters were established in an informal manner by local members. Chapters like the New York group drew up constitutions and by-laws for their own administration. The New York version (1934) was published in Volume 2 of our Journal. BPA membership was not always a requirement for joining a chapter.

At first, no official BPA charter "parchments" were granted the Chapters. The Board usually knew about incipient chapter formation and was able to offer advice. After a few years, it was felt

that the Chapters owed certain responsibilities to the national organization, but that regulation should not be too stringent. Conditions varied with locality. The aims were the same. Constitutional amendments to accommodate new Chapter structures were published in the Journal, and later passed at the 20th Annual Meeting, 1950, in Chicago—a fitting advance for that anniversary event. Officers of the Chapters were to be active BPA members. The Chapters were to encourage national membership. Locally, the groups were to run their own affairs, yet with some sort of continuity. Formation now follows a successful petition to the House of Delegates, accompanied by a copy of the tentative local by-laws. Official printed charters are given each group constituted.

### ANNUAL MEETINGS

On the occasion of the organization meeting in 1931, Ralph Creer wisely arranged a technical lecture program and a photographic exhibit. This not only made the trip more interesting by demonstrating the character of biophotography but also illustrated the benefit of forming a group for just such interchanges. Such has been the thrust of all the Annual Meetings that followed. In addition member business meetings for those in attendance provided mechanisms for working out the multifarious details of running a growing organization. The Board had early adopted the use of the more business-like "Annual Meeting" over the more common term "convention."

It is true that most of the technical and business information disclosed at the Annual Meetings appeared in the Journal. But those who came got the technical data first and helped to make the business decisions. The stimulus of preparing an oral paper benefited the speakers because lecturing compelled them to refine their techniques for acceptable presentation. Their papers resulted in many Journal articles that otherwise would not have been written. The mutual benefit of author and reader cannot be exaggerated. Many leaders in our profession got their upward start as authors for the Journal. Many others were activated when the somewhat pentecostal responsibility of running an Annual Meeting descended upon them.

The early meetings usually lasted 2½, and sometimes 3½ days. They were generally timed to coincide with the short slack period just before preparations for Fall semesters were started in the colleges. At first no registration fee was imposed. The few commercial exhibits covered much of the cost. As the rates for hotel meeting rooms and services went up, and as the meetings became more elaborate, a \$2 fee in the late 30's helped to defray expenses.

The intent then was not to make money from the meetings but to break even. Those members who attended got the most and paid the most. Nevertheless, when a meeting ended in the red, the general membership made up the deficit from dues. This was not an imposition because they received dividends in the Journal. And, extremely important for all in our second era, the numerous tedious transitional details of advancing our professional status required resolution by the Board and Business Meetings of the Annual Meetings.

Business meetings included election and constitutional discussions. Numerous suggestions for improving BPA services arose spontaneously there.

There was also the social aspect to the yearly reunions. This helped to mold the BPA identity. At one time the entire attendance of members and commercial exhibitors could sit around in a single hotel suite. Resources were pooled for light refreshment. Then BPA affairs, among other matters, would be discussed far into the night.

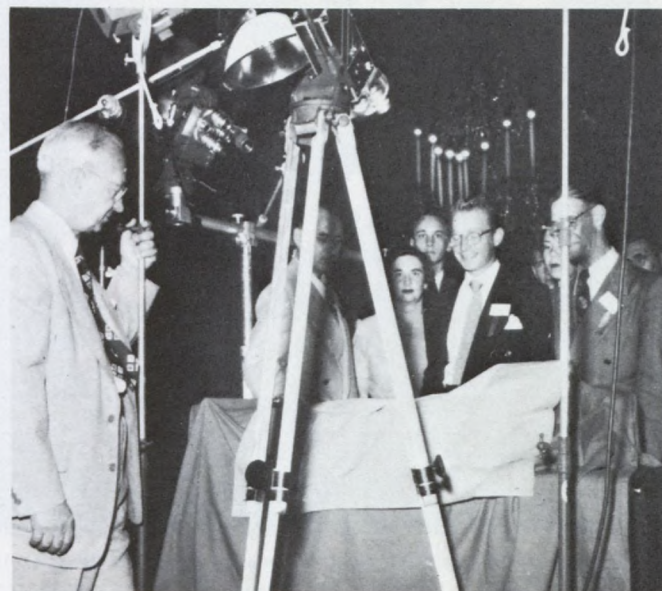
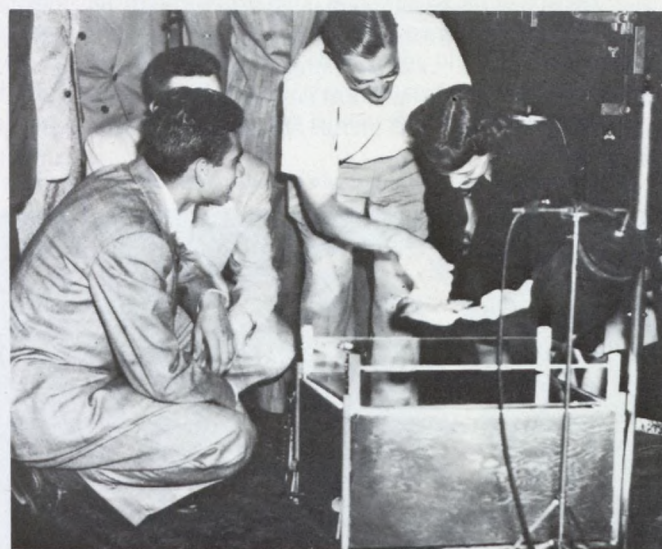
But the BPA "family" soon outgrew such quarters. The Chapter soiree in a hotel meeting room was one of the informal affairs that emerged. Then came Ansco clambakes, Dupont smokers, and Kodak cocktail parties. BPA breakfasts were also popular get-togethers—and, incidentally, were fine subterfuges for assuring attendance at the first lecture of the day. Largely to Harris Tuttle must go credit for making the Annual Meeting more attractive through the concept of a family vacation event. Charlie Brownell introduced the idea of a children's soda pop party.

The commercial exhibits enabled BPA to obtain the latest information on the products of large manufacturers. They also provided an opportunity for smaller concerns who were devising special cameras for teaching and biophotography. The Cine Kodak Special (1933), and the special cameras of Burton (1935), Buckey (1940), Cameron (1944), and Knebel (1949) come to mind.

One of our members, Lester Dine, was encouraged by BPA to adapt the electronic-flash ringlight that he was manufacturing to the solution of some of the problems of the close-up photography of living subjects.

Many of the technical advances to be discussed further on made a debut at our Annual Meetings. Such items as the following appeared in BPA commercial booths: Polascreens, Vectographs (1936), Harrison Color Temperature Meter (1938), Kodatron Speedlamp (1940), Winnek Trivision (1941), Phase microscope (1945), Norwood incident light meter (1947).

For many years no Annual Meeting was complete without Pierre LeDoux, of the Veterans Administration Hospital in Wood, Wisconsin, chasing around to record events with a Graflex Camera almost as big as himself. His photographs here show some of the technical demonstrations that have always been one of the meeting highlights. A demonstration of the Kodak Dye Transfer Process is being watched by (left to right) Kothe, Foster, Horton, Bird, and Bieter. John Bieter demonstrates how blackened shields can save the eyes when bare-bulb illumination is adopted. Mervin LaRue conducts a session on the techniques of surgical cinematography. Many of the illustrations in this history were copied from the albums made-up for viewing at annual meetings from Pierre's photographic contributions.



As the technical exhibits grew in numbers, it became necessary to formulate some business-like procedures for arranging them. Continuity from meeting to meeting was guided by a national chairman as a consultant for the local members. In 1947, Stanley McComb appointed Howard Kothe to the post.

From the tabulation of early meetings it is clear that most of our activity was in the East. In 1953 we went to Los Angeles. From then on we accommodated members by choosing cities in the West, the West coast, the South, and in Canada.

### The Salons

At each Annual Meeting an exhibition, usually called the "Salon" for convenience and identification, was presented. This comprised a display of prints and slides. Here again, the history of BPA was reflected in the history of photography. Names nostalgic to our older members are: Finlay Plates (1931), Agfa Color (1935), Kodachrome (1935), Infrared film (1935), Chromatone (1937), Defender Pan-chroma (1943), Kotavachrome (1941), Ansco Color (1942), Kodak Dye-transfer process (1946), Flexichrome (1949). The majority of prints were in black-and-white, however.

The aim of the Salon was to offer an opportunity for studying and comparing techniques and illustration quality. In 1934 a judged competition was held and awards were given. This practice was stopped after 1936 but started again in 1948, for it stimulated much exemplary work. In 1948 motion pictures were included in the competitions.

For a while, Salons were run rather haphazardly. The local Chairman of the Annual Meeting delegated one of his colleagues to arrange the exhibition. Entries were brought to the meeting and

prints hung as they arrived. As the Salon became larger and gained in repute, it was necessary to develop working rules. In 1940, Nathan Horton was named Chairman of a new, national Salon Committee. First steps were taken to regulate and publicize the event.

Some BPA exhibitors got an inkling of what would be necessary for running a larger salon when they were invited to contribute a special section in an exhibition mounted by the Photographic Society of America. This was held in 1941 at the Museum of Science and Industry in Chicago. Strict rules and deadlines were demanded by PSA.

At the time of the 1944 Annual Meeting in Binghamton, New York, most of our exhibitors sent their prints in ahead of time. They were elegantly hung by Lloyd Varden and his BPA group in an Ansco display facility. This raised the aspirations of later Salon Committees. All hotels did not have the same capabilities, but the Salon was increasing in stature. Something had to be done.

In 1945 designs for panels that could be disassembled and packed for shipping to each convention city were studied. However, materials for construction were scarce and expensive. So, in view of the increased consciousness of the need for meeting where there were good display areas, it was decided to do without them. After the war, hotels were better geared for furnishing good hanging and judging facilities.

The matter of collecting the exhibits in advance and of keeping track of them for judging, holding, and returning was still to be worked out. In 1947 I was the local Chairman of the Salon. Nathan Horton went along with my idea of trying an international Salon on a one-time basis for the purpose of focusing attention on BPA. Instead of a members-only exhibition, entries were accepted also from non-members in the Americas and Europe. A comprehensive set of new rules had to be drawn up. Entry blanks were redesigned.

## Cities Hosting BPA Annual Meetings

| Year | Location            | Chairman            |
|------|---------------------|---------------------|
| 1931 | New Haven           | Ralph Creer         |
| 1932 | New Haven           | Ralph Creer         |
| 1933 | Rochester, New York | Arthur Fuchs        |
| 1934 | New York City       | Louis Schmidt       |
| 1935 | Chicago             | Ralph Creer         |
| 1936 | Boston              | Ferdinand Harding   |
| 1937 | Rochester, New York | William Payne       |
| 1938 | Philadelphia        | M. A. Dillman, M.D. |
| 1939 | Pittsburgh          | Chester Henry       |
| 1940 | Milwaukee           | Leo Massopust       |
| 1941 | Buffalo             | William Payne       |
| 1942 | New York City       | Joseph Haulenbeek   |
| 1943 | Princeton           | Julian Carlile      |
| 1944 | Binghamton          | Lloyd Varden        |
| 1945 | New York City       | Joseph Haulenbeek   |
| 1946 | Chicago             | Jay Garner, M.D.    |
| 1947 | Rochester, New York | Arthur Fuchs        |
| 1948 | Philadelphia        | H. E. Morton, M.D.  |
| 1949 | Cleveland           | David Lubin         |
| 1950 | Chicago             | Ralph Creer         |

No entry that was received later than the deadline was judged. A group of prints from England that had been delayed in shipping was received late. An emergency display of them was made on the last day of the meeting.

Over 200 prints, 120 transparencies, and several motion pictures were received. A separate, illustrated catalog was printed, because of obligations to non-members, who did not receive our Journal, where award winners had usually been listed.

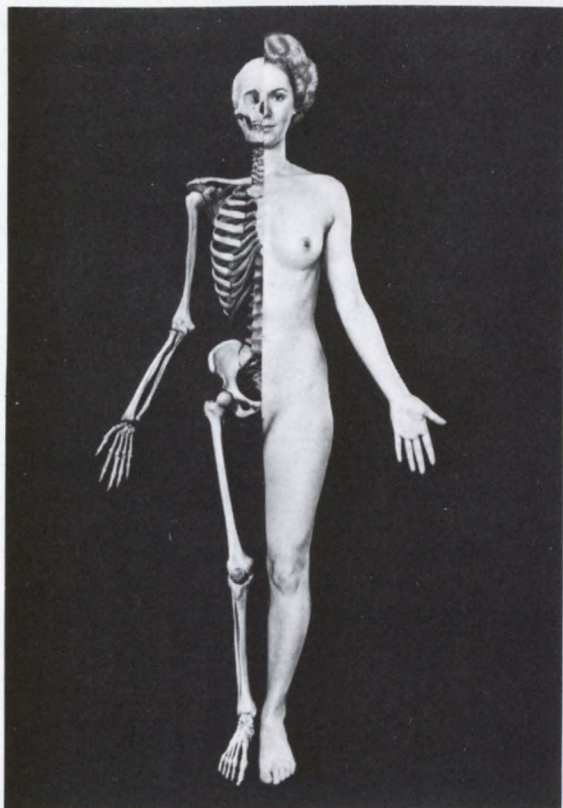
This experience provided later Salon Chairmen with the new rules and procedures that had been worked out. They were presented to the membership in a Journal article and became essentially the standard rules. Later, Lynn Baldwin did careful work in adapting the basic structure to suit an ever-increasing participation.

Prize-winning entries provided several features for the Kodak publication *Medical Radiography and Photography*. In later years, journals directed at physicians and hospital administrators have reproduced some of the outstanding photographs.

### Traveling Exhibitions

From the Salons, selections of prints were made that could be circulated to members unable to attend the Annual Meetings. These exhibitions were also lent to professional groups and to public institutions like museums.

The 1934 collection had two showings in the Chicago area—at the Veterans Administration Hospital in Hines, and at the West Side Suburban Hospital. In Pittsburgh it was shown at the convention of the American Association for the Advancement of Science; in Syracuse, at the University of Syracuse Medical School. Then, according to the record, it was sent to “Kansas City and points west.” In subsequent years, longer itineraries were the rule.

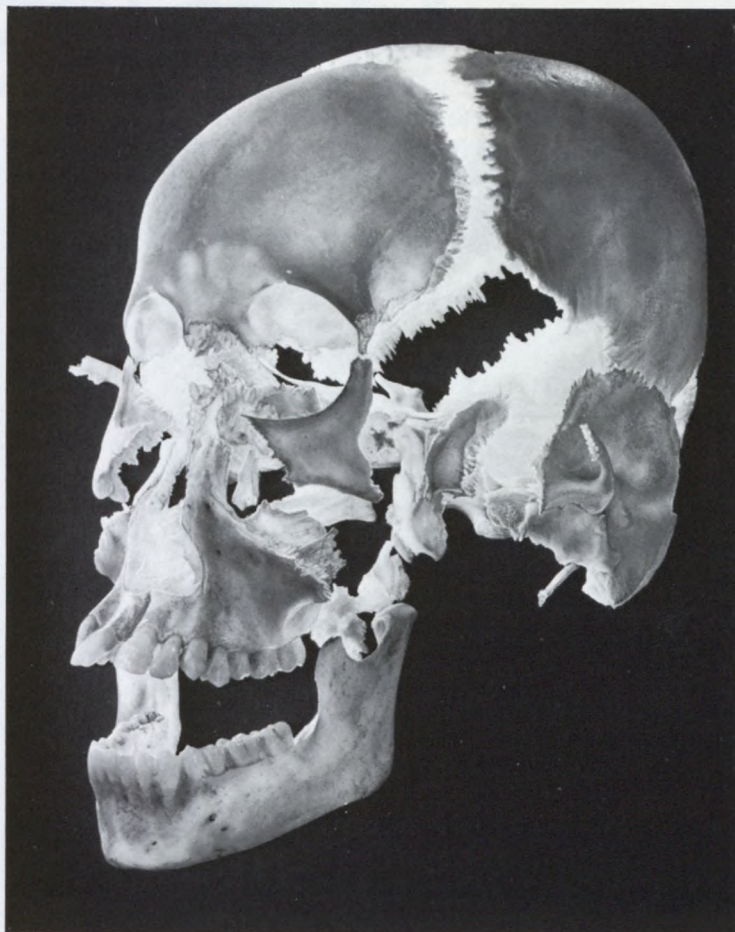


A comparison of skeleton and habitus provides an example of a teaching illustration in contrast to one made for following progress or for research.

Before the Traveling Exhibitions were dismantled for return to the authors of the prints, a few of the best prints illustrating the diversity of biophotography were requested for the purpose of building Permanent Collections. These were also made available for circulation. They were particularly useful when a traveling show was wanted by two separate groups for about the same date. The Traveling Exhibitions were kept on the road for about two years; the Permanent Collection could be circulated at any time.

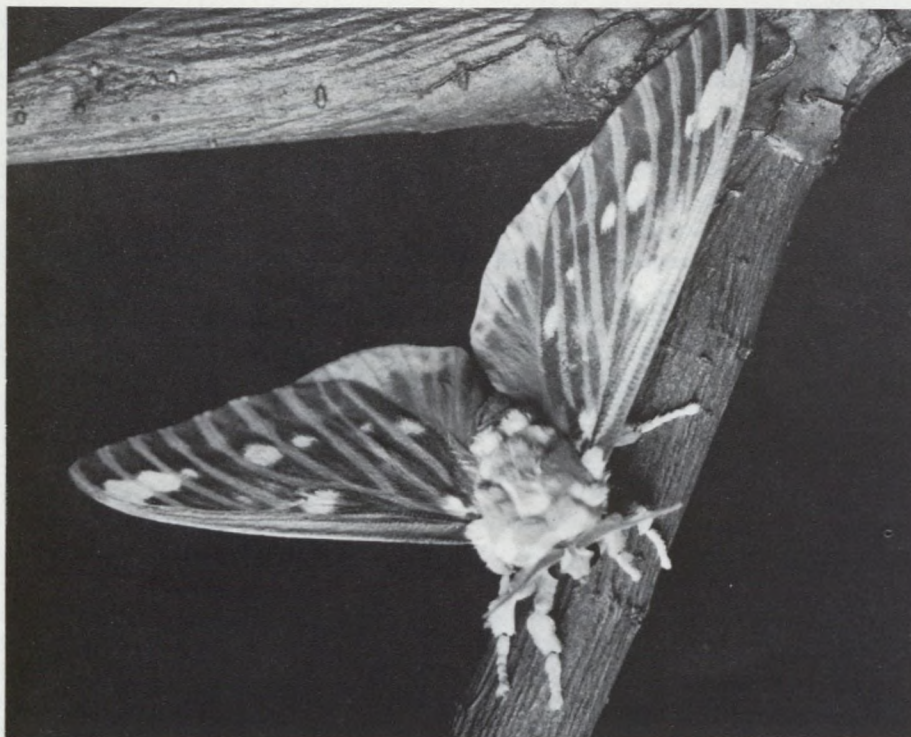
The value of the traveling shows was twofold. They helped to display to members what could be done from the standpoint of subject matter and its graphic treatment and also offered examples of good print quality. Then, too, these exhibits like the BPA booths at biomedical conventions were seen by professionals, upon whom the prints had a subliminal effect. Most of the doctors and scientists could make a reasonably clear camera record and could “wing” an ordinary photograph, but approached photomicrography in frustration. The excellent photographs of microscopic specimens, plus the fine examples of ordinary photography, must have stimulated the desire for many a photographic department.

By 1947 the routing of traveling shows had become somewhat complex. So a permanent responsibility was delegated. In that year, William Stevenson, of the Mount Sinai Hospital, assumed this duty for the Cleveland Chapter. Later on, Lucien St. Laurent, of the Canada Department of Agriculture, Ottawa, did the booking and routing through Canada in order to minimize border crossings. The service is still offered today and current dispatchers are listed in the Journal.



This photograph of a disarticulated skull made a striking exhibition print without any sacrifice of informative quality.





Natural history subjects, such as this live royal walnut moth, were always included in Traveling Exhibitions because of the diversity of professional and public viewers.

By the 60's we had two traveling exhibitions in constant circulation and three different sets of 40 prints each from the Permanent Collection. Lynn Baldwin and Lucien St. Laurent circulated the Exhibitions, and I amassed and routed the Collections. At each Annual Meeting I gathered a small group of members for selecting prints from the Salon that, after circulating in the Traveling Exhibition, would be returned to me instead of to the photographers when the exhibition was retired. Permission to do this was obtained by letter. Later on there were squares, to indicate such permission, incorporated in the Salon entry blank.

#### Albums

For several years, starting from the beginning, members made up albums of prints illustrating their own expertise. This activity reached its peak around 1938. Representative of the kind of work circulated were the following albums:

*Photography of Plant Research*, Julian Carlile, Rockefeller Institute, Princeton.

*Photography at the Massachusetts General Hospital*, Wilbur C. Lown.

*Photography of the Anterior of the Eye*, Adolf Marfaing, Institute of Ophthalmology, Columbia University.

*Photographic Methods at the Rockefeller Institute for Medical Research*, Louis Schmidt and Joseph Haulenbeek.

In subsequent years the program became a war casualty. The activity was not revived, most likely because of the greater attendance at Annual Meetings and at new educational functions of BPA in the later eras. Members could study examples of biophotography

in ways besides perusing albums. Chapter exhibitions also served when they were held later on.

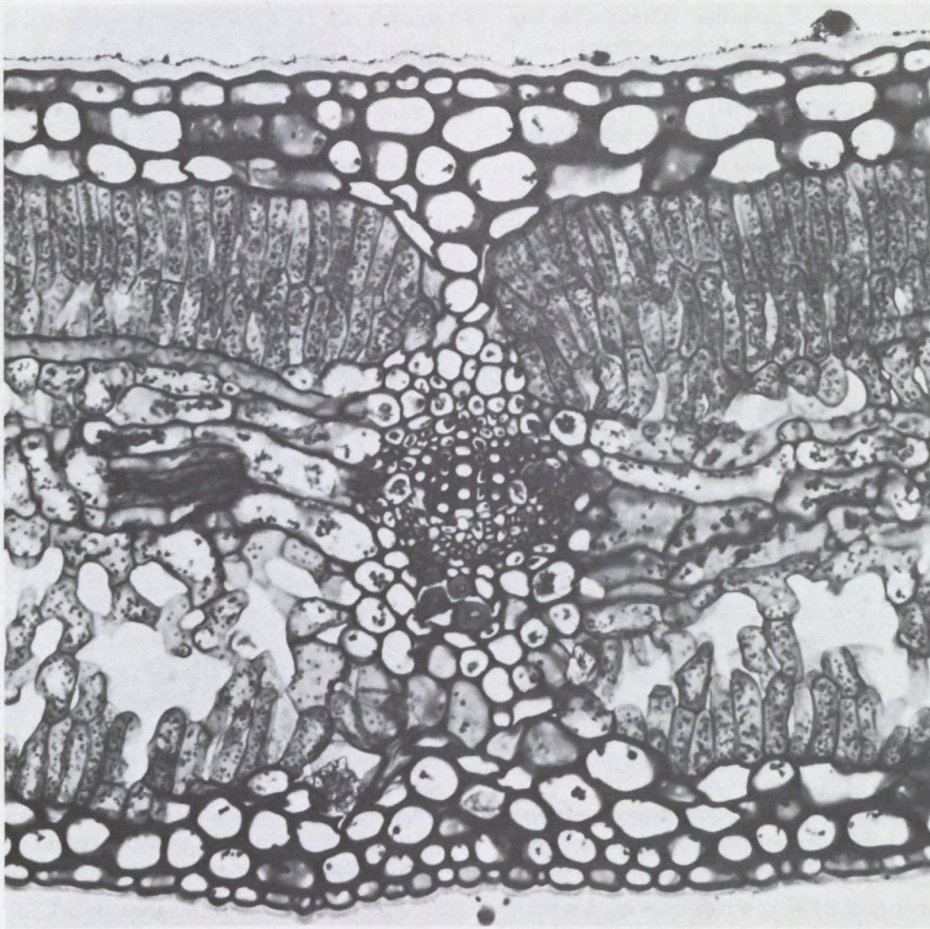
#### AWARDS

There were two classes of awards. First were those given in conjunction with the Salons. Then there were service and achievement awards. Salon awards started as ribbons and certificates that enabled the recipients to show evidence of their skill to their administrations. In 1956 "Medical Education Awards" were initiated. They were prizes of \$25 in five categories. In addition to photographic quality, communicative effectiveness was criterion for such recognition.

The Charles S. Foster Memorial Award that now appears in Salon data was named for Charlie Foster, of the Eastman Kodak Company, who died in 1954. He was an expert in photomicrography and in making color prints. For many years he helped our members in these fields. His genial and forthright personality is still remembered.

Our Canadian membership has always had a high proportion of enthusiastic photographers in the natural sciences. It is logical then that they should sponsor (ca. 1970) the Canadian Natural Science Award for our Salons. Other awards, for medical photography, have been given from time to time by the publishers of medically oriented journals.

The top award for achievement is the Louis Schmidt Award. It consists of a citation given by the previous winner, an illuminated scroll, and a jeweled BPA key. The candidates were first chosen by a committee appointed by the Board. The next-to-last recipient



Cellular structure of a Nerium leaf. (From *Photography by Infrared*, Courtesy of John Wiley and Sons.)



Water strider, *Gerris marginatus*, at rest. Sunlight cast the shadow, and glancing illumination from a bare, clear-glass photoflood bulb modelled the otherwise imperceptible hydrophobic striations in the lens-like depressions, which provide a mechanism for traction.

became the head of the next selection committee. When the list had increased to nine it was maintained at that figure by dropping off the last member each year.

The award is given to BPA members solely, and then only when a worthy candidate emerges. By 1977, 29 BPA men and women, including a member from England and two from Canada, had received the honor.

The William V. Gordon Award is akin to the Louis Schmidt Award. This is the highest distinction for scientific photography in Canada. It is administered by the Ottawa Chapter of BPA. It has been given each year since 1969, when Charles P. Hodge, of the Montreal Neurological Institute, won it. The recipients are Canadian photographers who have made outstanding contributions to the advancement of science through their photography. William Gordon became interested in biophotography through its application to his work—the investigation of aircraft accidents. He was a founding member of the Ottawa Chapter.

In 1948, two ad hoc committees were inaugurated. These were to be appointed by the incumbent President at the Annual Business Meeting. One was requested to judge the oral presentations at the Meeting; the other, the year's Journal articles at the close of a volume. In this way, the Best Oral Paper Award and the Best Journal Paper Award were initiated.

One of the duties of the Recommended Practices Committee, formed in 1956 under Warren Sturgis, was to bring some sort of uniformity to BPA awards. In the early 60's, the efforts of Richard Matthias in this respect resulted in elegant plaques.

Salons and awards have not changed much over the years. They continued to serve the purpose for which they were intended in the first era, as they were carried into the second and third eras. With respect to the general activities of BPA, however, each era has been full of diversity.

## GENERAL ACTIVITIES

Besides the red-letter functions of our members, there were years of gray routine that wrote the first act of BPA history. An early concern that still receives some consideration today was the matter of centralizing the photographic department. Professionals in the various disciplines were making their own photographs. When their need for illustration grew too great for them to spend time away from their prime occupation, a photographer was often added to the unit in which they worked.

As early as 1935 Louis Schmidt expressed the opinion that doctors were taking work away from photographers. This was a perennial worry for many of our members. Each time a simplified, specialized camera was introduced, such as those described in the discussion of our Annual Meetings, most felt that the functions of the photographic department were in danger of being usurped, because non-photographic personnel could operate them. This feeling can be best characterized by noting a short period in the second era when Lester Dine and the Eastman Kodak Company introduced the Technical Close-up Outfit and the Startech Camera. Current levity at the time defined an intern as: "A bright young man in a white coat, going about the hospital with a stethoscope around his neck and a Startech in his pocket." Earlier, simplified close-up cameras had been met with the same lack of enthusiasm by professional biophotographers.

That the usurpation factor is negligible in the equation was demonstrated by a surge in photographic activity after the war. The

intern's reliance upon photography, once it was established, became intensified as his professional experience advanced. He then had neither time nor inclination to train himself to be an expert photographer. When his institution needed clear and informative illustrations of a wide variety of clinical subjects, or slides and prints, research records and charts, they required more than a Startech Camera to make them. It was also realized by many administrators that the most expensive labor-cost photographs in the world were being made by their pathologists.

In natural science laboratories the situation was essentially the same. But in the period before the war, there was somewhat less justification for centralizing photographic activities. The reason was that much of the photography was done for individual research—the shutter had to remain cocked day and night. In some disciplines a large amount of field work had to be done. But again, as the need for diverse types of records grew, a central processing unit and a production laboratory became desirable.

In 1934, Thelma Baird, who worked in the department of anatomy of a northeast-central university that had an early multi-function photographic facility, complained that the service did not adequately cover the needs of the medical school. This forced anatomists and clinicians to make their own photographs. It is obvious, then, that centralization had to be carefully defined and implemented for the benefit of all.

After the war, biomedical institutions paid more attention to centralization. Technological advances made for efficiency in the producing and production of the sheer number of records wanted. Then, too, educational methods were being restructured to make more use of sound movies narrated in-house, of teaching carrels, and later on, of television.

Robert Sage laid the groundwork for consolidation in 1941 with a paper in the Journal. One of the most thorough early investigations into the running of a centralized unit in a university was undertaken by Arthur Smith, of Cornell University. He later described the photographic service he had established to the 1948 Annual Meeting.

Some modification in thinking has occurred since. In essence, the adequately equipped central department was thought to:

- Do the major bulk of the processing and finishing of photographic records.
- House and administer the photographic archives.
- Cooperate with or incorporate an art department for all kinds of graphics.
- House the camera and lighting facilities for all subjects that can be brought to a studio layout.
- Provide some short-notice personnel and equipment for sudden calls, such as to the operating theatre.
- Establish satellite units and train personnel there to operate them. (This point is elaborated further on.)
- Prevent costly duplication of equipment, like cameras and photomicroscopes, by conducting a repository and loan service as part of the satellite program.
- Be responsible for projectors and sound systems and their routing as a visual aids service.

Today, a television expert and equipment can well be a part of the illustration facility.

Some of the chief arguments against a centralized department used to arise from institutions doing research that involved photography. An animal in a certain stage of an experiment, for example, could require immediate photographic documentation, were



The Ehrlich white room. The setup made constitutional photography by photographically inexperienced personnel practical. Others have found that morphological records can be effectively made in a white room using a single moveable lamp with a clear 1000-watt bulb, or a high power electronic flash unit (each without reflectors) as a light source.

it day or night. It was not always possible to dispatch a photographer and a bag of equipment right away for such sporadic calls.

Smith's group made setups for such satellite photography, provided and processed the film, and advised the experimenters on how to operate the photographic equipment.

Very often, in other institutions, it was found that the simplified cameras served the purpose adequately. Indeed, some of them saved the central department time in making specialized records. In other setups, such as those for somatotype, orthopedic, and constitution studies, the arrangement of lights and camera had to be precise. Yet once the standardized arrangement had been made and calibrated, photographically inexperienced personnel could make the records without supervision.

Probably what is the epitome of a simple satellite unit was worked out by Sam Ehrlich of the San Francisco Presbyterian Hospital and Medical Center. He had a totally white room constructed—walls, ceiling, floor, and furniture. A single 800 watt-second electronic flash lamp, directed toward the ceiling so as to bounce its main beam down towards the patient, furnished illumination for good morphological modeling. The patient stood on a platform at a fixed distance from the camera, which was focused for that distance and clamped. The shutter pointer, too, was fixed once the exposure had been calibrated. Hence, photographically inexperienced personnel merely had to position the subject, trip the shutter, and pull a film-pack tab. The setup was used to record the constitutional appearance of child patients before and after heart surgery.

The lamp yielded a uniform lighting for all patients at all stages of their progress.

Satellite units were often set up in autopsy rooms. It was thought safer to keep lights and a camera for use there only.

As pointed out by Hugo Rodeck of the University of Colorado Museum in 1940, these establishments usually had a homebased studio and laboratory, and of course some of their photographers had to be in the field, miles away. The Department of Agriculture had 300 field agents capable of doing photography, as well as some central units. William Payne of the State Institute for the Study of Malignant Diseases, Buffalo, in a 1938 lecture, described the extensive use of photography made by police departments in their crime laboratories. Some had mobile units covering their cities. It is clear that centralization has to be geared to the type and needs of the institution in order to be effective.

The growth of photographic departments in number and size is largely the result of BPA activities. We demonstrated the need and value of photography and raised the status of our members. It is specious to say that such advances would have come without the help of BPA. That may be partially true. Yet the progress would not have been so fast. And, most important for us, photographers would not have had control over their own destiny. When the boom came, BPA was ready.

#### Department Management

Early departments were usually cramped. Budgets were low. Salaries, even with real dollars, were pitiful. William Martinsen



in Veterans Administration Hospitals all over the country. Not only that, he was able to obtain a decently high rating for the personnel. Job descriptions that were worked up outlined a high performance requirement. That, too, increased the stature of the photographers involved, and indirectly, of all in the field.

The most proficient single group were those former medical photographers who had served in the army medical illustration units (about which, more further on). Many of them joined the VA facilities rather than return to previous jobs.

Lloyd Varden was a consultant for the New York Civil Service. He was instrumental in upgrading the status of medical photographers in the state.

These factors had two effects. First, civilian salaries had to be raised to match the civil-service rates in order to hold photographers in the private sector. Second, facilities had to be created for educating new photographers to the high level of performance needed for coping with advancing technical and academic complexities. The significant part played by BPA in the second activity is a major feature of the history of the second era.

Biophotographers finally achieved the status merited by the expertise and professional attitudes and responsibilities. Such had been the goal of BPA from its inception. This was not a narrow partisan aim; others felt the same. For example, the *British Journal of Photography*, which speaks for all phases of photography, included the following remarks in an October 11, 1940 editorial. The occasion was a review of our Milwaukee Annual Meeting and of the aspirations of BPA.

“We have in the past frequently expressed regret that so often photography is regarded not so much as a co-equal collaborator, but as the slave of the sciences. Here [in BPA] is a different atmosphere, and one which we would like to see spread throughout all science and technology so that it must soon become impossible for photography any longer to

escape recognition not merely as a subject, but as a full faculty—on equal footing with chemistry, physics, biology, and the like—in all seats of learning. It should then very soon be found that it is indeed an all-embracing faculty, with tentacles spreading throughout science; to the end that the trained and qualified photographer will become a key man throughout science and industry by virtue of his wide grasp of the subtleties of the multifarious services that photography renders, and of the niceties of its application in their rendering.”

We could not have said it better ourselves.

### The MAMAS

Surgeons in the '14-'18 war had been trained with the aid of photography. The Signal Corps of the U.S. Army was responsible for photographic activities, and in the late thirties there was no medical photographic program. The BPA had a large part in changing this. At the 1937 Annual Meeting in Rochester, N.Y. Ralph Creer reported that he had had discussions with the Surgeon General regarding the establishment of medical photographic units in the Army Reserve Corps. In 1938, Louis Schmidt asked Henry Morris to prepare a resolution offering BPA help in organizing a photographic branch of the service. Our efforts showed evidence of bearing fruit in 1939, when Lt. Col. J. E. Ash, curator of the Army Medical Museum, wrote to Anne Shiras. He stated that possibly commissions in the Sanitary Corps could be arranged in spite of the fact that the branch was not operative in peace time. This Corps, when active, was the repository for all medically related activities except those performed by nurses, dentists, and doctors in the services.

A BPA letter to Col. James C. Magee, Surgeon General in 1940, agreed with the move to do something along these lines. Col. Ash replied with an outline of the type of information that could be valuable in forming a medical illustration unit in time of war. We



The Sixth Detachment of MAMAS. Pfc. Paul J. Sedlock, Sgt. Albert Levin, T/Sgt. Sidney Shapiro, Capt. Charles G. Brownell, Sgt. Fred J. Toelle, Sgt. Frank J. Davis, Cp. Clyde H. Wortham.

prepared an inquiry sheet to be sent to the membership along with William Martinsen's questionnaire on departments. The results were sent to Col. Ash in 1941 and were held for the possible need for the activation of such units.

Soon the need arose. Ralph Creer, who was the only official photographer in all of the Hospitals of the Veterans Administration, was called to Washington in 1942. He was given a commission to organize and train units for the Museum and Medical Arts Service. Shortly afterwards, the Sanitary Corps was inactivated, and the Medical Administrative Corps was formed for assuming a broader responsibility.

Creer started with two enlisted BPA members, Howard Francis of Reading, Pennsylvania and Howard Lawson of Brooklyn, New York. A unit comprised one officer with broad medical photographic experience (if possible), two medical artists, two photographers, a chauffeur, and a clerk.

The response to the 1940 BPA inquiry had not been too enthusiastic. However, when war broke out, Ralph Creer was able to steer many drafted BPA photographers into the program.

The first detachment left for India in 1943, under Captain Graham Eddy. Another BPA officer led the fourth—William Taylor. Harold Baitz was in the fifth. Charles Brownell, who helped to train several units, took the sixth to Italy. Albert Levin of the Pittsburgh Chapter and later our Treasurer, and Sidney Shapiro, an officer in the New York Chapter, and later FBPA, were in his unit.

The program proved so valuable that three more outfits were activated before the end of the war.

When the units were disbanded after the war, Major Creer urged that a medical illustration service should be set up in each VA Hospital. He was given this assignment by Dr. Paul Magnuson. However, after a few months he was invited to join the American Medical Association to organize, and later to administer, motion picture and audiovisual educational programs. For a time he trav-



Former BPA President Ferdinand Harding served as liaison with the U.S. Navy.

eled between Chicago and Washington in order for him to start the foundation of the VA Illustration Service.

Creer then went to Chicago permanently. Before doing so, he arranged for Graham Eddy to take his place in that Service (January, 1947). Eddy selected Ralph Creer and Tom Jones as consultants. Under Eddy's direction, the numerous illustration units in the VA Hospitals were established.

The Veterans Administration concept of the functions of medical photographers and artists soon became a kind of standard. In 1951, the U.S. Employment service and the American Hospital Association came to Eddy for help in preparing position descriptions—the first time this had been done for these occupations. BPA was given credit for aiding in the project.

### Other BPA War Service

Apart from members on overseas duty, others served at home. The work of Arthur Fuchs as instructor at Walter Reed Hospital X-ray School is noteworthy. Here he had as an assistant a man who was to play an important part in BPA advancement after the war—Stephen Dittmann.

Deam H. Ferris was Chief of Photographic Service at Camp Dietrick in 1947 as a parasitologist in the biological warfare unit at Edgewood Arsenal. After the war he stayed on at the camp as a scientific photography specialist. Then he went to the University of Wisconsin as a photographic instructor and wrote his Ph.D. thesis on the role of biophotography in his field.

The U.S. Navy activated four motion picture production units for its Medical Department. Two worked in the United States, one in the Pacific theatre, and one in the Atlantic theatre.

The films dealt with many aspects of military medicine. For hospital corpsmen, such topics as the immediate care of the injured were covered. Many films demonstrating the prompt treatment of wounds, as well as health and sanitation measures, were made for medical officers.

The Naval Medical Center at Bethesda also had a photographic facility. The motion pictures of Warren Sturgis received much acclaim. Sturgis was assisted by Wilbur Chase Lown. The Naval Hospital in Philadelphia established a biophotographic laboratory under Alex Gravesen.

All branches of the armed forces drew upon biophotography for information. As early as 1938 important work in aviation medicine was being done at the Mayo Clinic by Leonard Julin and Lardner Coffey. Photography in the human centrifuge was a forerunner of experiments that led to the space age. Coffey, who incidentally was one of our Presidents later on, was the only photographer cleared to work in the area where these experiments were conducted.

In 1947 Ferdinand Harding was appointed Consultant in Photography at Chelsea Naval Hospital—holding his directorship in photography at the Childrens' Hospital in Boston. It is clear that the value of photography was becoming recognized.

It is not necessary to describe the difficulty in obtaining materials during the war to you who were civilian photographers then. Much of the work of BPA members was classified as an essential civilian occupation. We had a sympathetic representative in Lloyd Varden, who understood the needs of biophotographers. He was chief of the motion picture and photographic section of the consumers branch of the War Production Board.

Our efforts were in the field of gathering vital information. The *Scientific Monthly* for November, 1942, in an article on new sub-



Stella Zimmer discusses the role of medical photography and BPA with Julius Halsman, of the Army Medical Museum, at the Annual Meeting, Chicago, 1946.

stitutes found by science in order to offset imminent shortages, presaged photography's value as follows:

"Lest it be assumed that there are satisfactory substitutes at hand or foreseen for every material now used by civilized man, one element should be mentioned that appears to be utmost, if not indispensable for very important purposes. It is of more importance than all the gold buried in Kentucky, than all the diamonds that are used as ornaments or the cutting points of tools. It is silver. For what is silver uniquely used? The answer is for photography, and hence indirectly for all the science and art and records and industry that depend on it. Fortunately silver is widely distributed over the surface of the earth in quantities abundant for the uses of photography."

In view of some present-day developments like video cameras, the role of silver may be co-starred, but not the part of those who operate cameras.

#### Rapport with Other Groups

Our cooperation with organizations such as the American Medical Association and the American Association for the Advancement of Science regarding their scientific exhibits has already been mentioned. Each effort created interest in BPA. Some members were gained. But the main benefit was the recognition of the role of biophotography.

The value of photographs as teaching aids in colleges was appreciated early. Then, it was seen that even the private hospitals were teaching institutions. Some conducted formal courses for nurses; others, informal sessions for training service personnel. Many were beginning to provide regular extension seminars for interns. Staff conferences were indirect teaching assemblages. All could be aided by photography.

Professionals in various disciplines often attended our national and chapter meetings. The Chicago Chapter had good rapport with Dr. Morris Fishbein, who was for many years the editor of the *Journal of the AMA*. Others were active members. They sometimes delivered papers there and at our Annual Meetings. Many wrote landmark papers for our *Journal*. In 1940 the Study Club of the Chicago Dental Society asked Ralph Creer to conduct an 11-session lecture course on the techniques and applications of dental photography. This type of assistance became common.

As a result of a plea made by Dr. Charles S. Cameron of the American Cancer Society at our 1942 Annual Meeting, our members loaned significant slides to be duplicated for a lecture series. The sets were to be delivered to groups of general practitioners, who often did not have the time to attend professional meetings. In that way, they could become better alerted to the dawning need for the early recognition of cancer. In 1942 Edward Hamilton exhibited several imposing 8 by 10-inch Kodachrome photomicrographs in the BPA booth at the AMA Convention. These had impressed Dr. Cameron with BPA members as important sources of illustrations having great potential value in his program.

The Leonard Wood Memorial of the American Leprosy Foundation approached the AMA to determine the feasibility of setting up standardized photographic recording for those doing research in the field. As mentioned before, BPA members worked out suitable methods. They enjoyed the fine cooperation of Mrs. Perry Burgess, wife of the Director, in establishing the parameters of the problem, and in implementing the application of the techniques developed.

For the veterinarians, our member Ray H. Bradley, D.V.M., contributed an article to the *North American Veterinarian* (December, 1948, Vol. 29). It was unusual and aroused interest for its informative impact—as a "picture story," it comprised mostly reproductions of photographs and photomicrographs.





Left to right: Lindley, Creer, Hodge, Ikenberg, Julin, Dittmann, Gibson, concentrate on technology in Dusseldorf.

Julin, Staub (Switzerland), Wallace, Helga Stengal (Austria), Hodge, Gibson, Hansell and Engel (England), Ikenberg, and Dittmann, relax to the music at Tante Anna's. These photos disclose the two main objectives of any BPA meeting—absorbing information and absorbing sustenance in the form of social relaxation.

Our members helped to cover biophotographic subjects in the Encyclopedia of Photography, which Willard D. Morgan and Henry M. Lester were assembling in 1940. Many supplied slides and advice for the Clay-Adams Medichrome series of slide sets (ca. 1944).

Another form of assistance has been appointing representatives to serve with groups fostering the progress of photography. The American Standards Association and the American Scientific Congress are good examples.

We have enjoyed working with biophotographers in Europe and Australasia. In Great Britain, the Association for Scientific Photography was formed in 1942. The aim was similar to that of BPA, from which the group had received encouragement. They were not able to support a journal. In 1946 they amalgamated with the well-established Scientific and Technical Group of the Royal Photographic Society, thereby gaining a publication outlet. They constituted a semi-autonomous Medical Group in the Society. Their activities brought to Britain a widespread recognition of medical photography as an occupation. This led to the separate publication in 1951 of *Medical and Biological Illustration* by the British Medical Association. Two of the joint editors and a member of their Editorial Board were BPA notables—Drs. Peter Hansell and Robert Ollerenshaw, and Charles Engel. Their journal and ours carried each other's tables of contents, for there are many who are interested in both publications.

A noteworthy fraternal event for some BPA members occurred in 1960—attendance and cooperation with the First International

Congress of Medical Photography and Cinematography in Dusseldorf and Cologne. This stimulated association among various national medical photographers. A particularly active group formed in Sweden under Kjell Palmgren, of Centrallasarettet in Vanersborg. Borje Nils Nilsson, of the Barnkliniken, Karolinska Sjukhuset, in Stockholm was an enthusiastic and prolific clinical photographer among the group. Both these men visited the departments of many of our members in the United States. They became loyal members of BPA.

The BPA has also cooperated with the Photographic Society of America. The PSA was formed in 1933 from over 50 clubs in the loosely organized Association of Camera Clubs of America. In 1935 the Society started publication of its Journal. The interest was largely pictorial; however, a Technical Section was formed, BPA members contributed to its success through dual membership, scientific exhibition, a joint meeting in 1944, and articles on biophotography. In addition to the special exhibit we mounted for PSA in 1941, we provided a program for the Binghampton Technical Section in 1943. Lloyd Varden, Stella Zimmer and Arthur Fuchs figured prominently in the session.

In 1947 the PSA started to circulate album portfolios of medical photographs in this country. Ralph Creer was commentator and Don Loving was the PSA Secretary for the rota. In 1952, under the auspices of PSA, I circulated an Anglo-American Medical Portfolio between 12 BPA members here and a group of medical photographers in Great Britain. In 1965 the sixth circuit became

mislaid overseas. In 1952, PSA conducted a series of technical symposia. Fourteen BPA members provided a full day's program on biophotography. Dr. Milton Bohrod, of the Rochester General Hospital [N.Y.], and I were joint chairmen.

Individually and as a group, we have cooperated with the medical artists. The Association of Medical Illustrators was started in 1945, with aims akin to those of BPA. Their first President was Tom Jones. They published a journal—*Graphics*—which included features on photography. Because of some dual membership, such as that of Eleanor A. Sweezy of the Montreal General Hospital, we carried their major announcements. There was some interchange of attendance at the annual meetings of both associations.

It has come to be realized that biological photographers and artists are engaged in the same duties—making and guiding illustrative communication. So, in many institutions, notably the VA Illustration Service, the two functions can be effectively combined. Not the least benefit from this is that much of the work of the artist has to be photographed for final presentation; therefore, the requirements and limitations of both media have to be considered together.

In 1956, BPA Liaison Committees were formed with groups associated with the American Medical Association, biological sciences, and the Electron Microscope Society. We were Affiliate Members of the American Institute of Biological Sciences and a Member of the National Society for Medical Research.

In the third era, relationships and joint meetings with groups involved with education and communication media led to the maturation of BPA and manifested its professional standing.

### Visitors

It is not practical to detail all the visitors from overseas that have called upon their BPA colleagues. Typical early visits show the nature of the interests represented. Dr. Peter Hansell, of the Department of Medical Photography, Westminster Hospital, London, being involved with the activities of medical photographers in Great Britain, naturally called on our institutions and members when in this country during 1948. As already described, a cordial interchange of technical and organizational information has been mutually beneficial.

A visit of a different nature was made by Kunji Lal Gahlot in 1946. He was a previous graduate of the New York Institute of Photography. His Highness the Mararajah of Bikaner, himself a photographic enthusiast, sent Gahlot to study post-war advances in photography. One of his assignments was to investigate methods of medical photography with the view of establishing hospital departments in that region of India.

Another visitor from India had previously spent several months with BPA members for the purpose of acquiring technical information. He was Shiram Desaprabhu, chief photographer of a Bombay medical school. Such interest, and the diversity of our membership (previously discussed) demonstrates that biophotography is a worldwide activity.

The Department of Public Health in Santiago de Chile, through fellowships granted by the Inter-American Cooperative Service, had sent about 700 persons to the United States for training in public health measures. Among them, in 1946, was Leopoldina Grabherr. She and her husband, both professional photographers, joined BPA in 1942. They had been attempting to establish photographic departments in Santiago hospitals. She came to study in several of our institutions and firms. Many of our members will remember her aptitude and charm. Upon her return she encountered

a discouraging change in official attitude and a wearying shortage of supplies. So she and her family moved to a pioneering colony in Southern Chile. There (ca. 1950) the group was tragically engulfed by a great landslide.

Then there was Reginald Johnson from Sydney, Australia. He was a commercial photographer. But in exchange for living quarters only, in the Royal Prince Alfred Hospital, he established and headed the Department of Medical Film Research. He came to our 1949 Annual Meeting in Cleveland. From there he travelled extensively in this country and gave many of our members some valuable new ideas and took some back with him. A couple of years later he gave up his private business and devoted all his time to biophotographic research. He utilized photography, cinematography, and electron microscopy in polio research and in sperm studies, among many projects. He also worked with the Sydney Laboratory of the Jockey-Club, chiefly in devising means for the disclosure of doping in horses.

As the years went on, BPA members travelled to congresses and made other trips overseas. They were always warmly welcomed by BPA colleagues and biomedical institutions. And, of course, we received many visitors here. One member, Mme. Elsie Ghez from Switzerland, came over to attend our Annual meetings regularly for a few years. In Geneva, she organized slide collections for use in medical centers there and in France.

Before closing the topic of visitors, a later one from India ought to be included here because of an ambitious BPA project he started upon his return. He was K. M. Acharia, from the Rajendra Hospital in Patiala. He came to our Chicago Annual Meeting in 1961. After visiting many of our members and photographic units he went back and organized a BPA Chapter in India. He gathered photographs from here, and from Indian biophotographers who were just emerging, and mounted a travelling exhibition. This impressed Indian medical and public health ministers. In 1965 the Chapter, under the editorship of S. J. Vazirani, published two issues of the *Indian BPA Journal of Medical Photography*. Several of our members contributed papers. A few years later Acharia went to England. There he joined the staff of photographers who prepare the rather exacting photographic visual aids required for the correspondence phase of the curriculum in the Open University. The Chapter became inactive after he left India.



Charles Brownell shows a setup for eye photography to Dr. Peter Hansell.

## CINE ACTIVITIES

The use of black-and-white, 16 mm film was well established before BPA was founded. It is hard to realize today the impact made by the introduction of a "fast," 16 mm film on acetate base. The previous 35 mm, highly inflammable, nitrate films were slow, and they necessitated such strong illumination that they were impractical for use in surgical filming—where they were wanted the most. Again, reels carrying surgical and other subjects such as gait studies, had to be projected in fireproof booths, just like cinema presentations. Such clumsy enclosures could be obtained in portable form, but they were not readily available. The introduction of Kodachrome Film, the Filmo D camera, the Cine Kodak Special, and the Sound Kodascope Special shortly after, made our Motion Picture Committee a most active one. The first Chairman was Oscar Richards in 1931. Film libraries were beginning to become necessary. In 1933, Dr. Richards distributed a questionnaire for the purpose of surveying the films already produced by our members. The report was published in 1935. Twenty members (15 percent) returned descriptions of the 45 films they had made. One member had 100,000 feet on plant life. The 16 mm format was favored over 35 mm by 18 to 2. Only two members had used existing color films.

The report also described the growing need for teaching films and pointed out that commercial producers could not keep up with the demand. Nor had they adapted themselves yet to the diversity of the demands. Biophotographers thus would have to learn to make films themselves. They were urged to establish a straightforward instructional style, because the dramatic Hollywood entertainment format was not appropriate or effective for teaching.

Sound systems had not become too useful. They were expensive; they often entailed the use of complex items such as disc recording, and the narrations were considered too inflexible for teaching programs. Nevertheless, in 1933 our member Joseph B. DeLee, M.D., of the University of Chicago, had published an article in the *Journal* dealing with sound motion pictures in obstetrics. The sample script he presented would do credit to anyone making medical motion pictures today. Later the advantages of providing sound tracks in different languages became apparent.

In 1941 an interest in a film exchange brought Edmund J. Farris, of the Wistar Institute of Anatomy and Biology in Philadelphia, into the BPA orbit. The institute started a film depository with the cooperation of the American Film Center, The American Association of Anatomists, and the American Society of Zoologists. Our members Oscar Richards and Ralph Buchsbaum represented the last named group and formed a liaison with BPA. Adolf Nichtenhauser was in charge of the section for films on health education and medicine in the Center. He also, in 1948, reported on the history of medical cinematography for the Bureau of Medicine and Surgery of the U.S. Navy.

Stephen Dittmann became involved with training aids for Army medical personnel and Edward Gunn, M.D., supplied the medical expertise to the scripting. Ferdinand Harding, Wilbur Lown, and Warren Sturgis performed the same services for the U.S. Navy.

Throughout the history of BPA some attention has been given to informing the public on the functions of medical photography. For example, Charles Lindsay of the Stritch School of Medicine, Loyola University, and later Chairman of the Chicago Chapter, was featured in the *Chicago Daily Tribune* in connection with a story on cinematography for teaching medical students (1948).

Warren Sturgis and Mervin LaRue, both of whom were later elected to be Presidents, headed commercial film producing units. After the war they continued their commercial operations in medical film production.

In 1949 the 16th report of our Motion Picture Committee announced David Ruhe, M.D., as Director of the Medical Film Institute. Ruhe, and Dittmann, too, later formed the BPA vanguard in the onslaught television was to make on the methodology of teaching.

The work of Ralph Creer for the AMA has already been cited. It should be pointed out here that he became a leading international authority and bibliographer of medical motion pictures. Members who contributed technical advances and papers on cinematography are noted in the next section.

## TECHNICAL CONTRIBUTIONS

Some of the most exciting technical progress in photography as a whole occurred during BPA's first era. You may question this and point to the mechanization of the past few years. It is true that such advances as electronic timers and processing machines make for the comfortable efficiencies needed in today's frenetic operations. There has also been a gradual introduction of vastly improved, but not always new, sensitized materials. It cannot be gainsaid that biophotography is benefiting from innovations that increase production. They are needed because the field has become so important in numerous applications requiring productive illustration services. Invention has become the mother of necessity.

Yet the satisfaction such advances afford is coldly practical and economic compared with the thrills of experimenting with a color film for the first time. Or exploring the new frontier of the infrared region. Or investigating the capabilities of polarized light.

Other phases got their start in those days. You who enjoy the versatility of zoom lenses are gaining from early experiments with antireflection coating for lenses. And who does not agree that a grand advance was made when photoflash and electronic flash units made obsolete the incendiary bomb exploding from a pan of flash powder. As Mervin LaRue put it, in describing his early days as a photographer, the resulting smoke screen had one big advantage—that of allowing the photographer to evade capture before it cleared itself by settling into the soup course of the banquet.

The carbonyl process worked by our member Leonard Perskie, as a professional photographer, entailed more work than today's processes for making color prints. Yet he could enjoy the process as well as the print. Today the means can be taken for granted—and that is all right provided the enjoyment of the end and its purpose are not swamped by impassivity.

The well-known experiments of Marey and Muybridge in the 1880's had established good techniques for recording and performing research through the motion photography of human and animal subjects. However, clinical photography was often done by portrait photographers. A typical record is the one shown here from an 1870 issue of the *Photographic Review of Medicine and Surgery*. The example was discovered by Percy Brooks of the New York Hospital of the Cornell Medical Center.

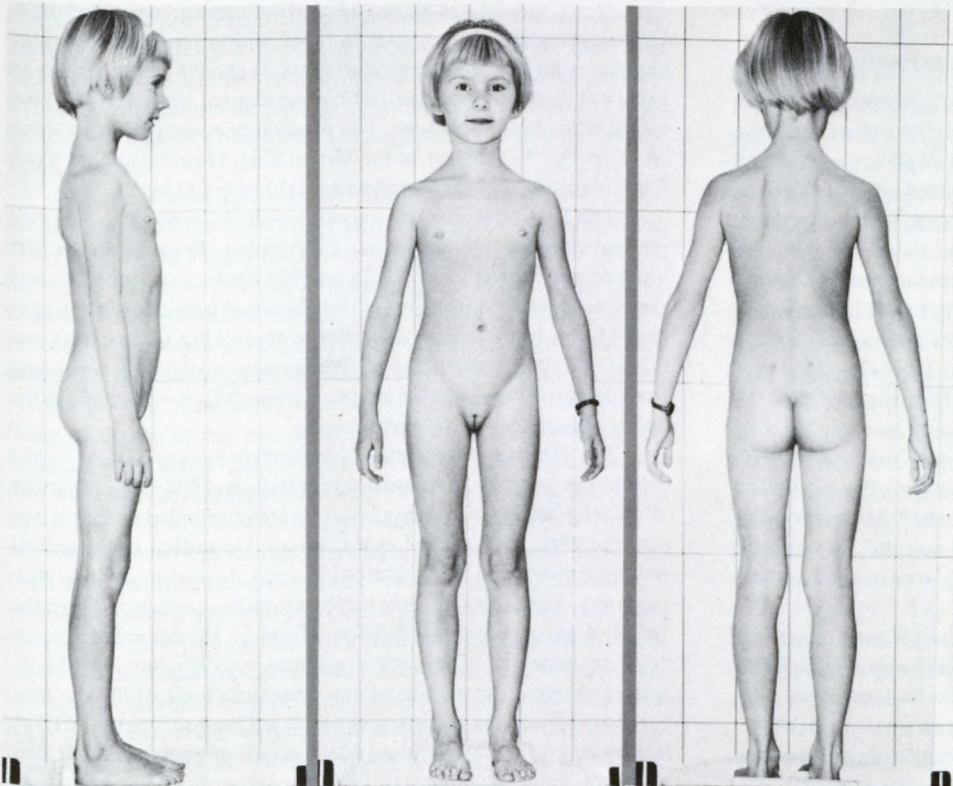
By the time BPA was founded, clinical photographers had developed a more plain, professional style. Some improvements in lighting, positioning, and background treatment were still to come. This was especially true in the study of constitution, in documenting orthopedics, and following child development. But, by and large,

# PHOTOGRAPHIC REVIEW OF MEDICINE AND SURGERY.



An early clinical illustration from an 1870 journal discovered by Percy Brooks with the help of the New York Academy of Medicine. This photograph and others were pasted into the publications. It was the first medical journal illustrated by photographs. (Courtesy of J. B. Lippincott and Company.)

## PLATE VII INHERITED SYPHILIS.



A standardized setup is required for the exacting photography of child development. This record was part of an integrated global study of the International Childrens Center in Paris. (Courtesy of Borje Nilsson of Karolinska Sjukhuset, Stockholm.)

the main technical advances in medical photography came in materials and equipment, and in the photography of formerly inaccessible regions of the body. Of course, all other biophotographic programs matured also. Such improvements came quickly as biophotographers took advantage of BPA for comparing techniques and styles.

Photographers became aware of the philosophy of illustration. Medical photography was more than just "before" and "after" recording. Most "after" records are not really needed for professional enlightenment; it is usually only necessary to state that the condition cleared. But for teaching, patient relations, and medico-legal purposes, suitable progress and follow-up photographs are valuable. Photography in orthopedics and plastic surgery becomes a tool.

In many research projects the camera was considered part of the necessary equipment. Agencies granting funds came to realize that money spent on research would be fruitless without adequate provision for recording and reporting results.

Adrianus Pijper wrote us a paper in 1948 describing cinematography as a tool. With it, he disclosed that certain motile bacilli were spiral and not rod shaped. He demonstrated that the "flagella" were not locomotor appendages, but instead they were mucous swirls caused by the motion.

The cinematography of surgery and other topics advanced from mere representation to a structured teaching aid. Films were often used in conjunction with slides. The stills could be paced to suit the audience; background information could be varied; certain slides could be reshowed when questions arose. Then the film could be run to present the topic in its continuity and pacing. Warren Sturgis discussed these aspects at length in 1948.

For photomacrography Chester Reather contributed his outstanding work in photographing the human ovum and fetus in developmental stages. For this he worked out a stereo as well as a single-view system.

### Color Materials

One of the most significant milestones was the advent of improved and simplified materials for color photography. Color cine films had been available, like the two-color Morgana, and the three-color Kodacolor Lenticular films. For still photography there were plates and films that additively synthesized colors with dyed starch grains, blood cells, or grid patterns. Paget, Dufay, Lumière, Agfa-color, and Finlay were the names heard then.

In 1935 "Kodachrome" heralded the rapid advances about to be made in color photography. Here the images were built up with layers comprising subtractive colors. These eliminated the loss in brilliance and the patterns caused by additive filter elements. Biophotographers were quick to utilize the new film, especially for 16 mm cinematography, which was just beginning to explode when Harris Tuttle described the use of Kodachrome A film to us in 1936. In that year, too, we received a report on 8 mm film, the merits and uses of which still engender evaluations. In 1942 Anscoolor Reversible Film for still photography, which was the first tripack material that could be processed in the field, was readied and released to the armed forces.

Just before the war, Ansco, Defender, and Kodak papers for color printing were beginning to emerge from the research laboratories. But it was not until the second BPA era that improved integral-layer materials of these types became universally available.

The Kodak Dye-transfer and Flexichrome Processes, however, were in common use. These materials did not require the extensive

research, experimentation, or complex plant installations necessary before simplified trilayer papers could be mass produced.

At first, the biophotographer was a little wary of using the new color films. This was because they had a narrow exposure latitude and the color quality of the illumination was exacting. However, once exposure and lighting were mastered, photographers realized that color photography was easier than black-and-white recording. For most biomedical subjects the greater part of the information is carried by colors. It takes much skill and experience to render these colors in monotonous—some authors state that the human eye can recognize only 200 shades of gray, but 5,000,000 colors and their shades.

One of the major concerns of BPA for many years was, and still is, raising the quality of black-and-white illustration, once the use of color became widespread.

### New Equipment

The adoption of color photography caused another revolution in photographic technology that had its beginning in this era. Paul Flory's Journal articles in 1942 and 1943 harbingered the need for precise sensitometric and processing techniques for both color and black-and-white production. Dunk, wash, and drip-dry photography became a mode of the past. A densitometer was now seen in many a darkroom. The need for the technical education of biophotographers began to be apparent.

The concept of Kelvin temperature for photography and photomicrography had to be grasped. At a meeting of the Pittsburgh Chapter in 1938 the Harrison Optical Engineering Company demonstrated applications for their color temperature meter—the knock of opportunity had been answered promptly. By the time Jean Crunelle of the University of Chicago, and Stanley Flesch described their general photographic uses and experiences with the Harrison Light Corrector Meter in 1946, their tutorial Journal paper was keenly welcomed.

Jean Crunelle was also an advocate of using an amplified photo cell circuit and galvanometer in determining photomicrographic exposures by reading the ground glass. It should be noted that an excellent Journal article in 1933 on an elegant device of this kind was a little ahead of its time. The presentation was by Louis Gross, M.D. and C. A. Johnson, of the Mount Sinai Hospital in New York City. Variations of their system are still in use today.

The first photoelectric exposure meter for use in studio still photography was the Rhamstine Electrophot, described in the first issue of our Journal in 1932. It was 1947 before we could discuss the novelty and applications of the Norwood Incident Light Exposure Meter. In these days of exposure control built into cameras it is hard to think of photography without meter technology—but easy to understand why color photography was at first considered difficult without experience with meters.

The 100th anniversary of Daguerre's announcement to the Academie des Sciences was celebrated in 1939. Our member Wolfgang Zieler, of E. Leitz Incorporated reminded us that it was also the 25th year of the Leica Camera. Up to that time medical photographers had not practiced a great deal of miniature photography. The technique was better established among those in the fields of natural science. But the advent of 35 mm color films of negative material, of very low graininess, and efficient 2 by 2 projectors changed the medical scene radically. Some of us who now carry 80 cardboard-mounted slides in a Carousel reel to a BPA lecture can remember hauling 63½ pounds of glass-mounted, 3¼ by 4-inch slides in yesteryear. For some years there was a battle of



One of Pierre LeDoux's lively meeting photos made at the 1952 Annual Meeting in New York City.

the formats. The larger slides, in spite of being easier for direct visual examination, finally are facing extinction.

With the 16-motion picture came the overvolted, photoflood lamps. Because of their relatively short life they were not widely used. Studio units with 1000-watt lamps were the order of the day. Then, improved photofloods were soon adopted by those using Kodachrome Film. The 3200-degree Kelvin lamp came in with Kodachrome Type B Film. Flashpowder was seldom used and photoflash bulbs did not receive immediate acclaim because they were expensive in routine photography. When synchronizers were devised, photoflash units found application where subject motion was a problem.

An ingenious setup for photoflash bulbs in slow-motion cinematography with the Eastman High-speed Camera was described in our Journal by Henry M. Lester in 1946. A ring of 17 No. 31 bulbs (which had a relatively long burning time to suit focal plane shutters) was mounted horizontally at the back of a parabolic studio reflector. The ring was rotated in such a way as to continuously swing the bulbs through a slot cut in each side of the reflector, thereby passing them through the focus of the parabola. Sequential firing of the bulbs was so regulated that each bulb reached full brilliance while in the reflector. Thus, an intense illumination ensued that was essentially constant for a period of 240 milliseconds. The firing, and subject action were accurately synchronized.

During our 1936 Annual Meeting in Boston, Harold Edgerton read a paper on ultra-slow motion cinematography utilizing a mercuric spark for illumination—a forerunner of his electronic flash systems. The first commercial unit incorporating the electronic flash mode was the Kodatron Speedlamp, introduced in 1940. Soon this and other studio units became widely adopted. The cool illumination they furnished and the extremely short exposure time they allowed made them ideal for photographing patients and other live subjects.

These lamps were followed by the Wabash Electroflash, which was the first portable unit adopted by biophotographers. Today, one smiles at its designation of "portable," for it weighed 21 pounds.

There was also an advancement in illumination for photomicroscopes. In 1950 Julius Weber, of Columbia University of Physicians and Surgeons, described for us in the Journal a concentrated arc lamp of high intensity. This is now called the zirconium arc lamp. Then there were papers by Oscar Richards, Dr. Tibor Benedek of Chicago, and Eric Lowenstein of the Bausch and Lomb Optical Company. These dealt with the use of the General Electric, H4, mercury arc for fluorescence photomicrography. The technique was elaborated by Dr. Robert C. Mellors of the American Cancer Society in order to produce ultraviolet translation photomicrographs—records made in three ultraviolet regions and combined to produce pseudo colors. In 1944 he applied the technique to the study of nuclei acid in cancer cells.

In 1936 Edwin Land introduced polarizing filter material. Its main use in biophotography was that of reducing the intensity of highlights in photographing shiny apparatus and specimens. In much research and photomicrography the material proved to be more practical than the narrow-field polarizing prisms in use up to then.

Toward the end of the first era, BPA members were able to evaluate applications of simple stereo photography projection for large audiences. A common sight began to emerge at meetings: an audience wearing cardboard polarizing spectacles, making one think of a convention of raccoons.

Another stereo innovation that appeared in our meetings at that time was the Winnek Trivision. Here, the three-dimensional effect was achieved with lenticular ridges. A similar photomechanical process appeared many years later. Also, the Vectograph was developed for polarized viewing of printed illustrations. However, stereophotography had limited usefulness in biophotography, and where it was valuable in morphological studies, the results were usually shown by projection or in hand-held viewers.

### Gross Specimen Photography

Minimizing the effects of obscuring specular highlights on gross specimens received much attention. Polascreeens were found to be effective, but the specimens recorded as though they were made of dull wax. Partial extinction was reasonably effective in black-and-white photography. However, the residual highlights were colored and bizarre in color records. Previous to the introduction of the polarizing material, immersion of the specimens in a saline solution had often been practiced. Again, the record did not give the appearance of a glistening wet specimen. Also, it was difficult to keep the solution from becoming cloudy. Another expedient had been to use broad, diffuse light sources. These, in effect, spread the highlight over the entire surface. The result was dilution of the contrast, texture, and color.

A specular highlight is an indistinct mirror reflection of the source—which is, of course, the bulb and the reflector. In 1942, my experiments, published in *Radiography and Clinical Photography*, demonstrated that reducing the size of the source reduced the size of the highlights. The specimens recorded wet and glossy. Yet the highlights obscured very little detail because they were contracted to pin points. Bare, unfrosted bulbs presented the small filaments alone as the source.

However, the bare bulbs were glaring to the eyes of anyone using them routinely. So in 1946 John J. Beiter of the Rochester [N.Y.] General Hospital wrote a paper for our Journal describing

blackened "reflectors" that he had devised for protecting the eyes. These acted as shields but they did not add to the size of the source, because their black surfaces did not reflect.

Backgrounds for gross specimens received a lot of attention from the standpoints of furnishing suitable tones and minimizing shadows. In 1932, Louis Schmidt and Joseph Haulenbeek showed a setup comprising a plate glass shelf for the specimen. This was held at some distance above a base, upon which could be placed cards in various shades of gray. The same flood lights lit both specimen and background. Holland cloth was used to provide diffuse illumination, which cast only indistinct and weak shadows.

Pedro Bunoan, of Mount Sinai Hospital in New York City (1932) and Francis A. Opp, of the Nathan Littauer Hospital in Gloversville New York (1933), wrote papers for our Journal describing light boxes for holding bulbs, diffusers, and backgrounds. The first placed the specimen on a sheet of ground glass transilluminated from below; the second, on a grey specimen board. The results were reasonably good for cut sections, but would not be acceptable today for rounded ones.

Black backgrounds were often used by photographers because shadows were not visible on them. However, they tended to unduly lighten the specimen tones as seen in the prints. Another common way to eliminate shadows was to opaque the negatives. This was time-consuming, exacting, and often created a cut-out appearance and altered outlines.

There was no general agreement among photographers or their clients neither regarding background tone nor of the sufferance or elimination of shadows. Illustrations from various sources were thus difficult to compare, or at least, were untidy.

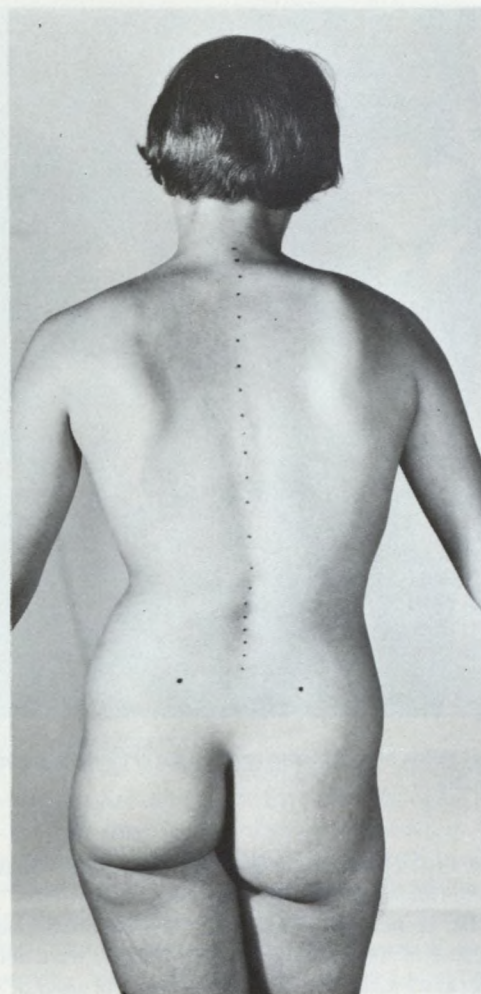
In 1944 John Beiter, working in the pathology laboratory of Dr. Milton G. Bohrod in the Rochester General Hospital, made a plea for standardization. The need had become more urgent, because by then a medley of background colors was entering the confusion. They published a description of the Beiter-Bohrod box in our Journal. Lamps for transilluminating the clear, colored glass backgrounds were located under a sheet of ground glass for the even dispersion of the illumination. The specimen was placed on a piece of ordinary tempered plate glass on the top of the box. It was lighted with bare bulbs independently of the background. The use of transilluminated glass eliminated shadows. Glasses of various colors could be inserted. A pale aquamarine was the recommended general color and departures from this were only those that enhanced the informative value of the record.

This system revolutionized gross specimen photography. It was widely adopted by BPA members and others on an international scale. For many years our Salons showed photographs made by the system. Many photographers still use it; others devised their own methods. However, as is inevitable, some photographers began to depart from the original *goal of standardization*. Background tones from pale to black and a wide range of often gaudy colors have cropped up to mar the original concept.

#### General Advances

Standardization and the establishment of fundamental attributes for informative photography received much early attention. The Journal contributions of some of the leading BPA proponents and pioneers are cited here to indicate the directions taken.

1932—Carl D. Clarke, main lighting should come from the upper left at 45 degrees.



Lighting from the upper left was the general recommendation. Nevertheless, the requirements for individual subjects must also be considered.

- 1932—Ferdinand Harding; principles and methods for copying radiographs.
- 1933—Chester F. Reather; stereophotomacrography of embryos.
- 1934—Sam Dunton; photography in public aquariums.
- 1935—Ralph Creer; photography of the uterine cervix.
- 1935—H. M. Dekking, M.D.; an extensive and definitive paper on eye photography.
- 1935—Torsten Gislén, Gustaf Odquist, of Zoologiska Institutionen, Sweden; laboratory aquarium setups.
- 1935—Ferdinand Harding; phantom photography for range-of-motion study.
- 1937—Harvey W. Spencer; a definitive paper on dental photography.
- 1937—Louis A. Waters; the basics of forensic photography including infrared applications.
- 1938—Julian A. Carlile; photography of experimental plant life.
- 1938—Ferdinand Harding; shadows should always fall downward; standardization of scoliosis records.
- 1941—Ferdinand Harding; a setup for photographing the plantar aspects of the feet.
- 1942—Tibor Benedek, M.D.; the ultraviolet photography of patients.

- 1942—John V. Butterfield; obtaining optimum quality in photomicrography.
- 1942—William Payne; copying dental radiographs.
- 1943—Jay T. Fox; biological photomicrography with Kodachrome film.
- 1943—Roger P. Loveland; photomicrographic exposures with Kodachrome film.
- 1943—Edward V. Taylor, of the General Electric Company; a simplified approach to improving dental photography.
- 1944—John A. Maurer, Loyola School of Medicine and Dentistry; using the photoelectric exposure meter to calculate photomicrographic exposure times.
- 1944—Edmond J. Farris; automated cinematography of rats in a specially designed cage.
- 1946—Charles W. Collins; photographing wild flowers.  
—G. L. Royer and C. Marish, American Cyanamid Corporation; Photography and photomicrography of ultraviolet-induced fluorescence.
- 1947—Stanley McComb; standardization particularly important within a given institution; improving published illustrations.
- 1947—Phillip H. Mott, Queens University, Kingston, Ontario; precise lighting and positioning for somatotyping.
- 1947—G. L. Royer; fundamentals of ultraviolet phenomena and photography.
- 1948—S. Glidden Baldwin, M.D.; the photography of big trees.
- 1948—Fritz Goro; photographic research in the discovery of sludged blood.
- 1948—Robert A. Sage; adequate letter height for legible lantern slides. (This was the first of many papers on what is still a perennial problem.)
- 1950—Margaret Markham, New York University—Bellevue Post Graduate Medical School; fundus photography.
- 1950—Arthur L. Smith; use and design of a sound recording studio.

There were strong undertones voicing the need for consistency in these lectures and papers. The BPA Motion Picture Committee included deliberations of standardization in their activities. Our work in standardizing setups for the documentation and study of leprosy has already been described.

Probably the most intensive statements on standardization were expressed at the 1948 meeting of the Royal Photographic Society. The group considered: nomenclature—picture size and shape—scale of image—illumination—film and filter—positioning—negative processing—after treatment of negatives [spotting, retouching, opaquing]—print quality—color quality. Their efforts covered all kinds of subjects and included photomicrography.

There is still a need for vigilance with regard to uniform values in the philosophy of illustration. The principles of communication are receiving much attention. Tom Jones pointed out in 1944 that BPA must become aware of the members' role in understanding and contributing to the advancement of the then imminent need for accelerated teaching methods. The term "communicator" became a key word in our second era. General media productions for academic communication are covered further on.

An aspect of communication that is not often considered was covered by Fred Kent in a 1947 article in *Medical Radiography and Photography*. For the home care of patients in families not speaking English, he prepared typewritten instructions in their own language.

These were bound into a folder that also contained photographs showing the exercises or other procedures required. He made illustrations in his studio, using the patient as the model.

The contributions listed so far are predominantly in the medical field. It is clear that the fields of natural science were also covered. The authors of some specific papers in these fields ought to be given special mention. J. S. Nicholas of Yale University laid down the fundamental principles (1936). Nathan Horton (1938) wrote a fine paper on ornithological photography. Eliot Porter, M.D. received a Guggenheim Fellowship for working out the flash photography of birds in color, which he explained in our Journal in 1941. Underwater photography is not as new as you may believe. It was practiced many years before BPA was founded. Naturally, technical advances have been made. Edgar End, M.D., of Marquette University School of Medicine and Dentistry, wrote us a fine paper on the topic in 1940. Since that time there has been important activity along these lines by BPA members. [It is significant to note that in the third era Richard Massey became editor of *Underwater Photography*.] Sam Dunton followed his 1944 article on zoo photography with several in the non-medical biophotographic field. Later papers by other authors covered veterinary photography.

Hence, it can be seen that BPA members significantly augmented scientific illustration when the artists could not keep up with the demand. Just as the artists took medical graphics out of the "figure-in-landscape" period, so the photographers took clinical photography out of the tintype period.

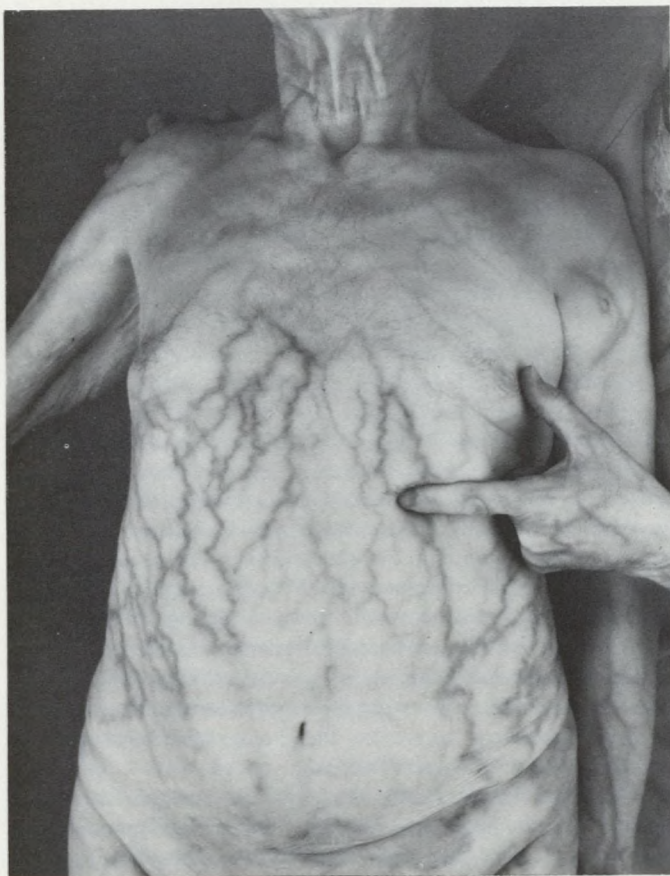
Besides being involved with shaping the style of cinematography, those who made surgical motion pictures had another concern—safety in the operating room. Photographers followed the rules for asepsis laid down by the medical staff. However, they were responsible for precautions against explosion from electronic flash and other photographic lighting equipment. It was not until cooperation with the National Fire Protection Association in 1949 that all the hazards were spelled out and safety measures codified. E. H. Greppin of the Wilmot Castle Corporation wrote us an article on the subject. This company developed operating room lights that had heat absorbing filters suitable for color photography. It was several years before non-explosive anesthetics simplified this aspect of surgical photography.

### Infrared and Ultraviolet Photography

In 1933, Walter Clark of the Kodak Research Laboratories contributed a feature on the fundamentals of infrared photography to the Journal. He outlined the promising applications that lay ahead.

By 1934 N. W. Barker M.D. and L. A. Julin, of the Mayo Clinic, had published the results from several investigations of the superficial venous patterns. Leo Massopust produced a large body of experimentation at Marquette University. His first results were published in the *Anatomical Record* in 1934. Then followed a series of his papers in various journals, which Leo summarized for us in our Journal in 1945. They dealt with anatomical studies of human venation, the nature of tumors, the renditions of gross specimens, and with photomicrographic investigations. By this time, the technique was widely adopted as a laboratory tool in the study of several conditions, and occasionally as a positive diagnostic sign in itself. In 1945, Kodak's *Medical Radiography and Photography* published my experiments and refinements in the lighting of human and other subjects.





"Milking" the abdominal veins of this patient upward and closing them with finger pressure was followed immediately by filling from below—indicating an anomalous circulation that could only be detected by infrared photography with electronic flash illumination.

An enormous amount of infrared photography, particularly from the air, has been carried out for the agricultural and scientific study of foliage. Dr. Prát did the first laboratory work with botanical subjects. His findings were published in our Journal in 1936. Application of infrared photography and photomicrography stayed on a plateau until the end of our second era. Then we published information on infrared color photography, which opened up many new applications.

The early work of our members in ultraviolet microscopy has already been described. There has been some application for the photography of the ultraviolet-induced visible fluorescence in clinical recording. Our first paper on the subject was written by Dr. Tibor Benedek in 1942. Royer and Maresch covered the recording of other biomedical subjects in 1946. A renewal of interest in ultraviolet applications occurred in our third era.

### Endoscopy

Besides BPA members initiating techniques and apparatus for advancing general biophotography, some made noteworthy contributions to endoscopy. The first BPA member to devise equipment for the photography of cavities was William Payne in 1938. He designed a special lamp and optical condenser for illuminating the rear of the mouth. It utilized photoflash bulbs and had a 100-watt lamp for focusing. The most consummate instrumentation for endoscopic photography was developed and built by J. D. Brubaker, an optical engineer in Chicago. His first BPA paper was published

in our Journal in 1940. He worked in conjunction with Drs. Jay M. Garner and J. P. Nesselrod, and later with Dr. Paul H. Holinger. These members contributed many other later papers to the Journal. In 1940, Dr. Wayne M. Hull, of the Balyeat Clinic in Oklahoma City, wrote a paper describing all the types of commercially available endoscopes that had been adapted for photography. The French investigators had been very keen proponents of the technique, and a demand for investigation and illustration had become intensified in our country. Later on, the introduction of lens coating improved the multi-element type of endoscope. Later still, fibre optics also made endoscopic photographs even more informative and now readily attainable.

Graham Eddy and Dr. Thomas Horan (Detroit internist) solved the problem of furnishing sufficient illumination for their intra-abdominal color photography. Telephone switchboard lamps were introduced into the area of interest and overvolted for the exposures. This team exhibited instruments and results at the 1941 AMA Convention, winning a bronze medal.

Early cinematography of the functioning inner ear was done by Brubaker and LaRue in 1946 and by Dr. H. G. Kobrak in 1951. The Journal has carried numerous articles on endoscopic photography and cinematography over the years.

### Miscellaneous Innovations

In 1936 Hamilton H. Poole wrote us a paper describing a multilith process and pointed out that some photographers might have to become involved in exposing the zinc plates. In 1941 Lorus Milne of the Randolph-Macon Womens's College, Lynchburg, Virginia, discussed the making of strips for the new concept of film-strip projection. He was just in time, because in the following year a series of images on direct-duplicating film were exhibited by Lloyd Varden.

Two technical achievements of the period are worthy of note. In 1946, Irving Rehman, of the University of Southern California School of Medicine, furnished our Journal with a paper on high-speed x-ray cinematography. He traced the attempts to accomplish this revealing technique from 1897 to 1945, when 60 frames per second were achieved.

Henry Roger worked on the Lifwynn Foundation's eye-movement camera. This was announced in 1946 and a paper on it appeared in the Journal during 1948. The timing device was an early example of a complex electronic control. Such intricate pieces of "non-camera" accessory apparatus later became indispensable in numerous photographic investigations.

The study of eye movements, too, has engendered advanced technology. The Lifwynn system was basically mechanical. The patient gazed at a white rotating comma-shaped target, the image of which was recorded on a sheet of film. From the patterns produced, it was possible to study various physical and behavioral disorders. Later systems involved optically plotting the movement of the corneal reflex. Lloyd Varden pioneered the reflection technique in the early forties.

It is apparent that techniques which today are taken for granted, or which have led to better ones, once presented many challenges to BPA members. Those early photographers did the groundwork for much of today's sophistication. Possibly the best way to spotlight the fantastic changes that have occurred and the need for mastering advanced technologies is to consider the role of computers in regulating production, expenditures, and record keeping in biomedical institutions. Then ponder on this: in a note in our Journal (1935) Oscar Richards suggested that learning how

to use an abacus might save a lot of time in figuring the departmental budget.

## THE JOURNAL AIMS

The BPA Journal has been source of orientation and a repository for accounts of most of the technical advances made by our members. Several health-related journals also have carried reports of their work and the applications served. (Such notices have focused

worthwhile professional and public attention on BPA and are described further on.)

It is not practical to make a "literature review" in this history of BPA. I have related years and topics as an aid to you who may want to pursue some aspect of the history of biophotography itself. Four BPA members who have researched very early medical photography are Merrie Mendenhall as a student at Purdue University, Nicholas Graver of University of Rochester, Ralph Glazier of West Virginia at Charlottesville, and Hans Dommasch, University of



This historic portrayal of smallpox was made in 1900 by John J. Light, M.D. The patient stood, in full sunlight, in front of a bed sheet hanging in the doctor's backyard. This record points up the archival value of preserving a worldwide continuity of references depicting operative, diagnostic and therapeutic techniques that are advanced and of conditions that become rare. Of special interest to biomedical photographers is the fact that through the efforts of the World Health Organization, smallpox appears to have been eradicated and that the last documented case at the time of this writing was that of a medical photographer in Birmingham, England, in 1978.

Saskatoon. Their addresses can be found in the current BPA Directory. They can advise others.

An interesting side glance at history is the fact that the first book to be illustrated by photomechanical halftones was *The Rules of Aseptic and Antiseptic Surgery* by Arpad Gerster of Hungary in 1887. The volume of 248 illustrations was published by D. Appleton and Company.

A recent issue of our Journal (Volume 46, No. 1, January, 1978) gives the particulars of obtaining back issues and photo copies. First, it would be necessary to obtain the latest Cumulative Index. From this, the papers of interest can be noted. They and their bibliographies cover a good cross section of biophotography from the 30's onward. For data on progress prior to that—back to the beginning of medical photography—one feature of the Journal will be found most helpful:

DUNLOP, J. R. Bibliographic References to Photography. *J. Biol. Phot. Assoc.* 1932, Vol. 1, 163-170, 216-226; Vol. 2, 53-56, 106-116,\* 173-176.

This feature was then changed to a vehicle for book reviews, furnished by various members. Noteworthy were the efforts of Ray Miess of Milwaukee, who added commentaries to the reviews and conducted the section from 1942 to 1948.

The illustrations herewith indicate the three dominant technical functions of the Journal—how-to-do and not-to-do-routine photography—how to improve the quality of the results—and how to improvise equipment or use available apparatus.

The Editors have tried to strike a balance between rudimentary, fundamental, and specialized techniques. In later years,

\* At this point the references were listed by C. B. Neblette of the Rochester Athenaeum and Mechanics Institute (later, Rochester Institute of Technology).

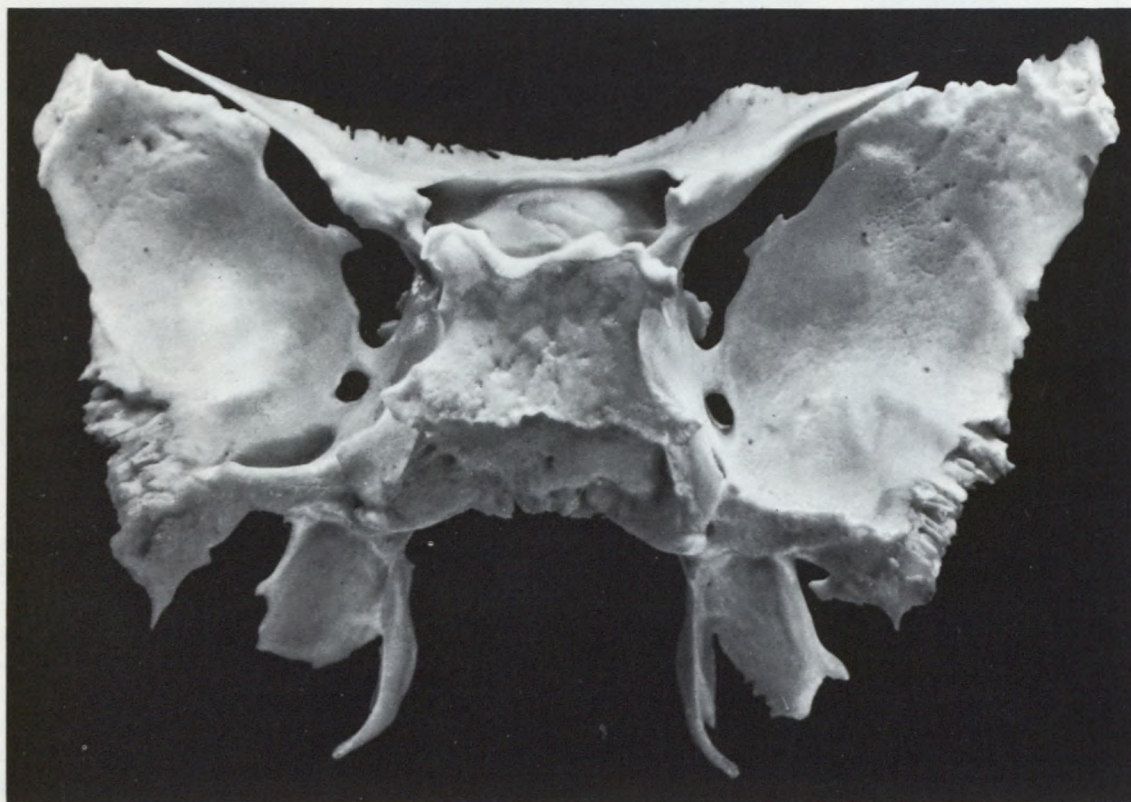
rudiments have been covered through education and in other publications. The emphasis of the Journal moved toward presenting in-depth treatments of fundamentals—witness the valuable tutorials of our third era. And, as the need for advanced technology arose, complex specialties were described.

The following is a chronological summary of the main topics covered in Volume 1. The interesting aspect of the list is that it could almost be one taken from the current Volume.

*Cinematography—time-lapse photomicrography—the photoelectric exposure meter—filing photographic prints—avoiding vibration in photomicrography—design of processing rooms—the Morgana color process—biological photomicrography—photomacrography—lighting gross specimens—flower and insect radiography—teaching aids in biology—cine animation—teaching films in medicine—photographs for reproduction—copying radiographs—a photocell exposure meter for photomicrography—a fiducial grid for full-length orthopedic photography.*

The usual editorials, forums, and abstracts were incorporated. New processes and equipment were covered by Ferdinand Harding from 1932 to 1950. Arthur Fuchs reported Association News from 1935 to 1949. In 1953, news was omitted and transferred to a News Bulletin, now the BPA NEWS, under the pen of Laurence Brown and Barbara Jacobs of the Harvard Medical School, and the photographic editorship of Donald Withee, of the Joslin Diabetes Foundation, Boston. They conducted this service until 1976, when it was assumed by Thomas Hurtgen of Eastman Kodak and Jerome O'Neill, Jr. of Rumrill Hoyt Inc.

The Journal had sporadically published details on positions vacant and employment wanted. This service became better known



when the BPA NEWS made a regular feature of such announcements from its inception.

The Journal started with one-column, 6¼ by 9 inch format. Paul Flory unified type styles in 1950 and Oscar Richards introduced two-column pages in 1953. It was not until 1973 that the 8½ by 11 inch page was adopted by Stanley Klosevych, Canada Department of Agriculture. This size conformed to that of many other technical magazines and allowed flexibility and efficiency in layout and illustration.

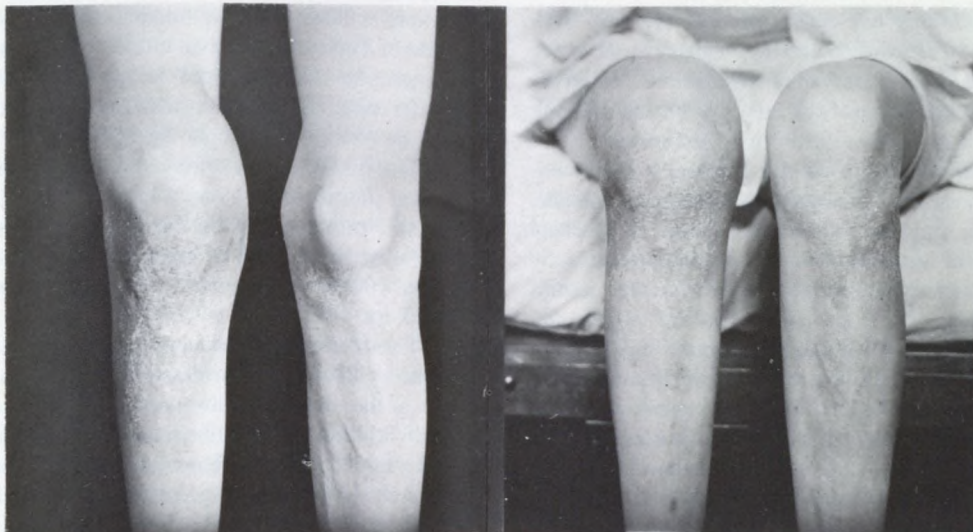
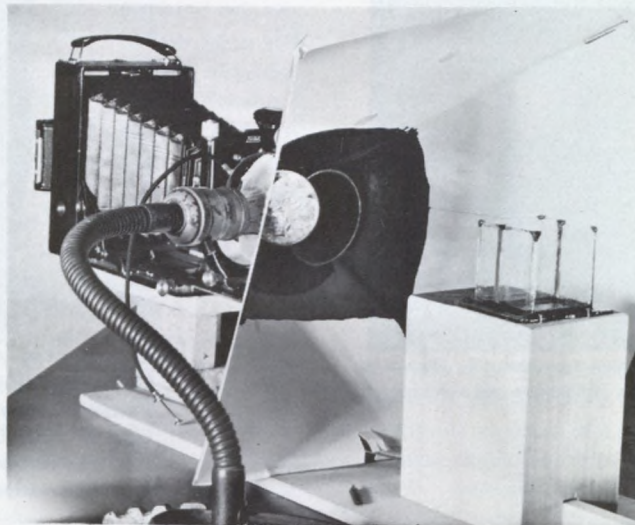
One of the benefits of studying history is that of gaining a new perspective for evaluating the present. In the early 70's, a great interest in Kirlian photography arose. We published excellent papers by Carl Boxler and Michael Paulson and by Leonard Konikiewicz on the subject. But did you know that Silvester Prát and J. Schlemmer, both doctors of physics in Czechoslovakia, published all the fundamental data on the process in our Journal during 1939. They credited Professor Navratil, a Czech physicist, with the discovery of "electrophotography," on which he published in 1911. Others have honored Narkevich Todko, a Polish doctor with the invention in 1896—in Russia. *Sic transit gloria mundi!*

Our Editors have continually endeavored to impart information through good illustration—and this includes color reproduction as far back as Volume 2. Color illustrations have appeared sporadically. But then as now, the cost of color printing limited their use. Color has not been employed for mere decoration, but for providing the information that color can best present. We can be proud of the fact that the Journal has contributed going on 50 years of authoritative literature on biophotography.

### Early Editors of the BPA Journal

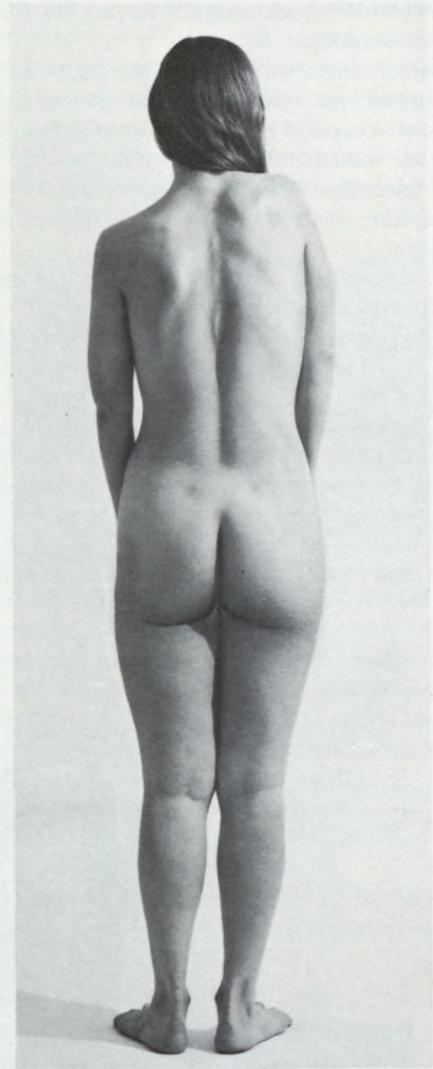
Carl D. Clarke 1932–1938  
Leo C. Massopust 1938–1949  
Louis Paul Flory 1950–1951

In 1951, Flory relinquished the editorship to Oscar Richards, when he joined the Medical Illustration Division of the Veterans Administration under Graham Eddy. Flory later became chief, for Eddy joined the U.S. State Department in 1960.





Bear Gooss, *Xerophyllum tenax*. Natural lighting is generated by the sun as a single source, with fill-in illumination from the atmosphere and surroundings. See also the smallpox record on Page 97.



Natural lighting can be established for modeling morphological subjects in a white studio by utilizing a single bare lamp, with fill-in illumination from the walls and floors. Compare the plastic effect here with that of the spinal record on Page 94 made with the usual studio lights.

## EDUCATIONAL MEASURES

The matter of working out education programs for BPA members preparing for Certification and the Registry is one of the major topics dealt with in the history of our second era. Nevertheless, it is fitting to note here some of the early efforts and thinking which in the first era created the wellspring for the second.

In 1933 Carl Clarke was considering a school to teach biophotography at the University of Maryland. No progress was made, however. Ferdinand Harding, in a 1934 editorial, urged that a school be founded. It took the impetus of interest in biophotography aroused after the war to start the realization by various institutions of these early aspirations.

By 1945 courses of one kind or another started to emerge. The previous efforts of Robert Sage had borne fruit. Southwestern Medical College, Dallas, had inaugurated a curriculum in medical art that incorporated some formal instruction in photography. Massachusetts General Hospital had a course in medical illustration that included two months of training in the photo laboratory. Johns Hopkins University School of Medicine had a three-year course that

comprised instruction in anatomy, microscopy, art, as well as photography, cinematography, and photomicrography. Rochester Institute of Technology had an intensive two-year course in general photography that was good background training for scientific photography. (Later, BPA helped to plan and inaugurate a full college curriculum in biophotography there.)

The first undergraduate course that dealt with the basics of medical photography alone was started at the Rochester [NY] General Hospital in 1943. It was staffed by John Beiter and Martha Brunings, and Dr. Bohrod supervised the medical and anatomical aspects. It became an important factor in our endeavors during the second era.

The position of biophotographers today is rooted in the soil plowed by BPA in the formative years. Their status flowered as a result of the strenuous cultivation done by those BPA members who toiled with the problems of education and certification in the transition years—work that bore rosy fruit in our third era. Only appreciative action by a coordinated BPA can gather the harvest in the eras to come.

## THE ERA OF TRANSITION 1950–1965

During the early years, BPA members worked resolutely to define for themselves the occupation of biophotography. In the second era came the exciting challenge to establish the value of the calling in the minds of administrators and educators. To do this, several avenues were explored. The practical solution to the complex problems that emerged was the result of many years of arduous deliberation.

Most members felt that in BPA they had reached a stage of proficiency and usefulness that warranted the formation of an organized union of master photographers, in order to consolidate and advance their improving status through the strength in numbers. However, many new members had not yet achieved the “master” level, and others had gone far enough to be dealing with administrative and educational affairs, apart from technical matters. Hurried casting of the group in a solely technical mold would have made further progress remote. Such a course would have been unfair to the accomplished and ambitious members, and it could have elevated the less experienced to an unduly high standing.

Another factor that contraindicated a purely technical association was the actuality of biophotographers designing and directing the use of their illustrations as well as the production of them. Also, particularly in the medical field, delicate personal relationships with physicians, researchers, and patients were involved. For example, the photography of abdominal surgery in the operating theater demanded much more sensibility than that needed for just handling the camera. Familiarity with several aspects of medicine was needed.

In the scientific field, biophotographers realized they could well be knowledgeable in the science in addition to being capable of making exacting photographs for the science. By understanding the significant features of specimens, they could devise special techniques for recording details clearly. They could discuss intelligently with the scientists details and aspects that called for graphic emphasis.

When these factors were presented to our members for their consideration, the majority began to think in terms of an association structured along unpretentious professional lines. As potential specialists, they were aware, too, that recognition of their role would have to come from professional groups outside BPA. They would be obliged to raise their capabilities and demonstrate their worth to the people who used the illustrations.

It became evident that educational programs ought to be initiated for those who wished to advance their technical and administrative abilities. Once such progress was accomplished, a valid system of accreditation could be inaugurated that would offer

tangible certification of achievement and ensure the confidence of user groups.

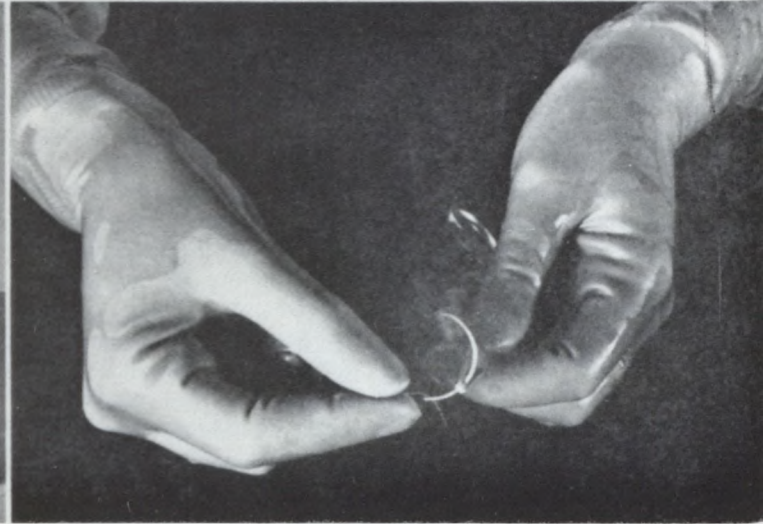
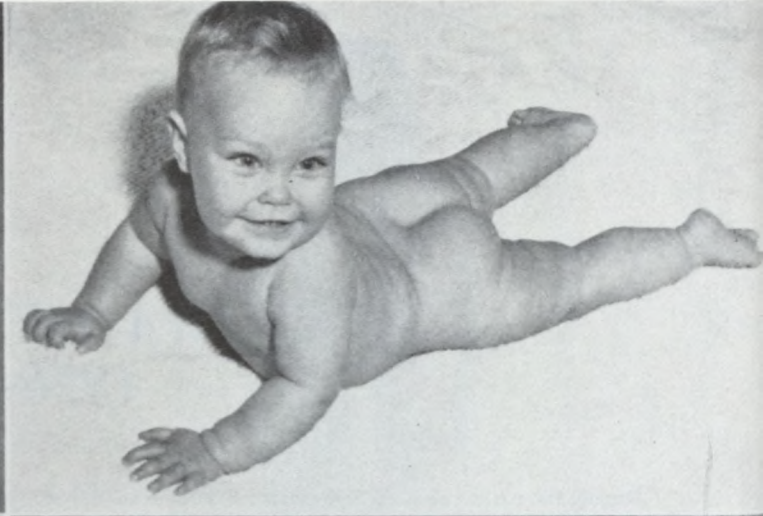
The history of our second era is largely bound up with the efforts of the officers and the Standards, Certification, and Education Committees to bring this about. Nevertheless, the era also saw advanced photographic and scientific activities and technologies that started appearing on the scene. These new activities and techniques induced a professional enthusiasm and made biophotography the absorbing occupation it is today. The fullest satisfaction came to those who fostered a desire to advance their technical skills and to understand the science and applications of the users of visual aids.

Then, as now, a sound background in photographic technology not only helped to assure competent workmanship, but also enabled photographers to cope with the challenges posed by difficult subjects. Moreover, photographers could often make photographic and scientific discoveries. Since a large part of their work was that of unobtrusively helping to report the discoveries of others, they were compensated by satisfaction with their own achievements. Those photographers knowledgeable in and associated with the research of eminent physicians and scientists could share in the excitement that fruitful exploration always brings. They had the rare opportunity for a sojourn in a professional plane adjacent to their own, because they often attended and participated in scientific meetings—a welcome change from the daily routine.

The eventual inauguration of the Registry of Biological Photographers was soundly based because it fostered both aspects of biophotography, to wit, phototechnical skill and scientific knowledge. By the end of our second era, BPA had earned the status of a reputable organization whose members were performing an indispensable service.

### COMMUNICATORS

The designation, “communicator,” became prominent and almost hackneyed in our second era. It was vaguely defined. Educators felt that it belonged only to their colleagues who dealt with the philosophy and administration of education. Illustrators included those among their confreres who understood the graphic and psychological impact of pictures and their modes of presentation. In a 1957 Journal paper (Vol. 25, 6), J. Edwin Foster, Ed.D., Director, Medical Audio-Visual Institute, Association of American Medical Colleges, defined a communication as “a message carried from one person to another.”



One of the aspects of biophotography that the Journal sought to emphasize was that numerous facets of any discipline lent themselves to photographic illustration for educational purposes. One of our 1957 pages is reproduced here. *Deforming arthritis*—Charles G. Reiner; *Normal Control*—Leonard T. Pimental; *Student Chorus*—John E. Withee; *Threaded Needle*—Gabriel Evancy.

BPA members, in their early reactions to the concept, saw that there were two aspects involved in effective communication: the clarity of the message and the manner of its delivery for ensuring assimilation. Clarity should be the responsibility of the illustrator in designing the message itself; delivery, the responsibility of the educator. These were separate but mutually dependant functions—like cooking and digestion.

The engrossing story of why the BPA needed 15 years to work out its role in communication is the most significant aspect of the history of our second era. It is related further on. That resolving the problem was important was made evident by the fact that it was a key consideration of educators at the time. Amongst them was Richard H. Orr, M.D., of Bethesda. In 1963, the Institute for Advancement of Medical Communication was formed under his directorship.

#### An Illustration Service

Who should or could carry out the functions of communication became a major concern of BPA. It is a moot question whether the one who composes the message or the one who delivers it is the "communicator." But in the context of those years, the term was

applied to both, although an understanding of effective delivery was always implied. Hence, a technically proficient photographer who did not have to consider the psychological impact of his photographs was not deemed to be a communicator.

A photographer could sometimes achieve the distinction by involvement with educational programs. An educator who could not change an f-number could always lay claim to the distinction of being a communicator.

Such deliberations affected the thinking about the constitution of photographic departments. An illustration service headed by a person with a doctorate in education was envisaged by some. He would have no mandatory technical illustrative skill or experience. Photographers felt, and rightly so, that they could not work effectively under such a system, because a practical knowledge of the production, quality, capabilities, and limitations of a photograph was necessary for heading a department so dependant upon photography. Photographers wanted to run their own departments as a service to their institutions.

Nevertheless, they did not rule out a photographic department having a chief of photography who acted as an advisor in visual aids to the administrative and professional staffs. Indeed, several BPA

members had trained themselves to act in such a capacity. In our third era, many achieved the status of professor in their institutions and became faculty members. They worked with, not for, the users of their illustrations.

Failing to have resolved the status and functions of an illustration service would have left BPA members as technicians with very little administrative responsibility, even in their own departments. After all, the aim of BPA, expressed in the Constitution was to further the relationship of photography to the biological sciences, as well as to improve the techniques.

### Journal Discussions

By the 1940's, our Journal began to carry the message to the entire membership—those who had attended the Annual Meetings had already participated in hot discussions of problems and solutions. Articles on the effective use of visual aids became numerous. Not only were photographers trying to improve their effectiveness, but educators also were doing so. More efficient methods of teaching were being sought.

In 1942, Wilson Footer, M.D., of Stanford University School of Medicine, wrote for our Journal (Vol. 11, 173) a forward-looking presentation of the opportunities which deserved appraisal by bi-photographers. His paper stated:

"The technics of teaching medical subjects have fallen far behind the advances made by the science itself. Whereas the methods of diagnosis and treatment have changed markedly, the same antiquated methods are used to impart this knowledge to the student that were in vogue centuries ago."

Dr. Footer went on to decry the unrealistic use of visual aids like "mummified specimens," the frustration from being seated in any row but the first in an amphitheater, the meager exposure to patients, and the poor presentation of scanty photographic aids. He described a desirable illustration service (along the lines discussed in the previous section), and he pointed out that members of BPA were the group to implement such a service. Many of the shortcomings he mentioned could be overcome by the liberal use of excellent photographs.

That well-rounded medical photographers could contribute to educational methods was advanced in 1951 by John K. Lattimer, M.D., Med. Sc. D., of the J. Bentley Squier Urological Clinic, Columbia University College of Physicians and Surgeons, New York. He stated in a Journal article (Vol. 19, 28) that many physicians in teaching colleges had had no formal instruction in teaching methods. Therefore, photographers who understood the nature of visual aids could render valuable service if they would "educate the doctor" in these respects.

In 1961, John F. Huber, M.D., Chairman, Department of Anatomy, Temple University School of Medicine, Philadelphia, wrote a paper for BPA (Vol. 29, 153) setting forth the support a "communication expert" could give to administrators in a medical center. He should:

"... act as the director, administrator, or coordinator under whose supervision would come the individuals or departments which are skilled in the preparation of communication or audio-visual devices ..."

Huber then gave specific suggestions for photographic and advisory activities related to teaching, research, public relations, and administrative officers. Planning the layout of the various areas in the center was included in his proposal. He listed 40 types of photographic, graphic, and television aids.

Bernard H. Mollberg, of the Research Institute, University of Houston, advised in a 1951 Journal paper (Vol. 19, 105) that administrators were beginning to look for medical photographers with ability to meet the needed advances in education. However, the administrators were concerned about the qualifications of the then current applicants. He posed a series of questions.

"Can the photographer do the job, they may ask, and if he can't, what are he and his fellow members lacking? And where does the photographer get his background and basic knowledge of medical photography, or even general photographic theory? Who judges him as a medical photographer and by what standards and rules does he claim to be a medical photographer?"

He proposed a four-year college course, which is discussed further on.

It should be realized that BPA members of long standing had become proficient through apprenticeship and many years of experience. The concern of school and hospital administrators, and of BPA, too, was how to meet the burgeoning demand for new, competent bi-photographers.

In a 1956 Journal editorial (Vol. 24, 150), I pointed out that BPA had a head start in the inevitable advances that were coming, and urged members to prepare themselves. This could be done by supporting the efforts of BPA committees already involved with standards, certification, and education. If the members did not enter wholeheartedly into these programs, they would most likely find: "... conditions beyond their control imposed upon them from two sources—non-progressive reactionaries and, ironically, progressive people relatively new in the field."

### A Purpose Established

In the Journal for 1950 (Vol. 18, 197) Oscar Richards had given the first announcement of a certification program. Numerous details of its arduous progress appeared subsequently. BPA sought advice from many sources besides the suggestions of members. At the 23rd Annual Meeting in Los Angeles, 1953, H. Russell Fisher, M.D., Professor of Pathology, University of Southern California, was asked to outline a basis upon which certification should be accepted by groups served by BPA members. The following is an excerpt from his paper (Vol. 21, No. 4, 28, 1953):

"The basic purposes of certification are two-fold, to insure and protect the public ... [through] the competency of those who specialize in biological photography, and to give recognition to the qualified practitioner. Its adoption should enhance the pursuit of several major objectives:

1. To encourage the study of biological photography.
2. To define the standards of training in biological photography and to progressively elevate them.
3. To promote and improve the practice of biological photography.

"Several steps necessary to achieve these objectives follow in logical sequence:

1. Definition of the field of biological photography.
2. Determination of the minimum standards of training, experience, and competency.
3. The devising of means and methods for evaluating and measuring the achievements of individuals in this field.
4. The determination of the competency of those wishing certification in biological photography by the judg-



ment of individual qualifications and by appropriate examinations, written, oral, and practical.

5. The granting of certificates of proficiency, of training, and preliminary practice.
6. The maintenance of a registry of the recipients of certificates and the publication of such lists to the interested public, together with the publication of the standards of training and practice.

"The definition of the field of biological photography must be made as complete and pertinent as possible, remembering that the term biology embraces many significant and important subdivisions of both academic and practical importance. The standards of training and practice must be such as to be desirable and acceptable to the present practitioners of your profession and at the same time they should urge new candidates to ever higher levels of achievement. Each subdivision of your specialty must have sufficient uniformity in its requirements and practice that all aspirants to certification can be treated with judicial fairness. Unless a considerable number can conform to a uniform set of standards, one should question the practicality of certification.

"The benefits of certification accrue progressively with the passage of years. It can continue to increase in value and importance until, in a decade perhaps, it becomes the authoritarian standard of vocational recognition. Such success of certification requires that its standards are originally set on a realistic basis, that it be supported by a majority of those who, by a common-sense judgment, are representative practitioners of your profession, and that the program is administered with complete intellectual integrity."

Such is the background against which BPA Standards, Certification, and Education Committees labored. Why it was 1965 before the first RBP's were convoked can only be appreciated by



Edmond J. Farris, President, 1947-1949, fund raiser, and Director.

retracing the many avenues these committee members were obliged to explore.

## STANDARDS COMMITTEE

By 1950, the affairs of BPA were becoming complex. Membership was over 700. More chapters were being formed. Larger Annual Meetings were mounted. Already established services to individuals and to chapters were increasing in scope and number. An evaluation of committee functions and some reorganization was being worked out. We were faced with financial deficits. And the need for criteria on accreditation was emerging. Clearly, our practices demanded examination and updating. A Standards Committee was given a standing tenure for counseling other Committees on recommended practices. Graham Eddy was appointed to the chairmanship by President Richards. Part of the assignment for Eddy and his committeemen and advisors was the matter of establishing certification.

There were more urgent problems to resolve before this Committee and the Governing Board could give full attention to certification, however. Officers and all Committees were so inundated by the necessity to cooperate in steering existing programs that the final formalization of some standards had to wait.

In 1951, Harris Tuttle scrutinized into the rules for judging motion pictures. Sidney Shapiro, of the VA Hospital, Bronx, New York, Chairman of the Traveling Salon Committee, studied standards for salons. Warren Sturgis worked on reorganizing chapters. A revision of the Constitution, to include among other modifications, a provision for a certifying body, was under the guidance of Eddy, Sturgis, and Verlin Yamamoto, then of the Veterans Administration Center, Des Moines, Iowa. Dr. Farris initiated a drive for general, sustaining, and contributing members to augment our exchequer and services.

This was necessary for creating a group large enough to furnish a sound base for expanded and new programs and to hold down the per-issue cost of the Journal. By 1952 we exceeded the 1,000 per issue goal. Nevertheless, we had to increase the dues to \$8.50 in 1955.

In 1954, when Ralph Buchsbaum, Ph.D., Department of Biological Sciences, University of Pittsburgh, was chairman of the Motion Picture Committee, another factor for preoccupation surfaced—television.

Certification was not lost in all this activity; David Lubin, of the VA Hospital, Cleveland, and the Northern Ohio Chapter worked out some preliminary details for presentation to the Annual Business Meetings. But the Board's administrative pace kept up, so that it is understandable that nothing much of a tangible nature could be done toward accreditation.

It became evident in 1952 that the Standards Committee was carrying a portmanteau assignment. Accordingly, its Certification and Education Subcommittees were activated. Considerations to that date had indicated the need for an educational foundation for the accreditation function. By 1956, the duties of the Standards Committee became confined to certification, and it was often loosely called the Certification Committee. Wm. H. Campbell, of the VA Hospital, Topeka, Kansas, was Chairman. Other former responsibilities with respect to standardization were turned over to a Recommended Practices Committee.

With many of BPA's diverse routine problems out of the way by 1956, it was possible to accelerate the large amount of work still to be done by the two subcommittees Members had begun to get



The 1952 Annual Meeting in Boston. Oscar Richards editorializes on the Journal; Albert Levin presents the state of the treasury; Lloyd Varden gives the Secretary's Report.

impatient with the slow progress, in spite of a continuity of discussions and reports that indicated the diligence of the subcommittees. Also, there was a tug-of-war going on in the background between some of the proponents of the pro-union and pro-profession approaches. Statesmanship was demanded of officers and committees in keeping the main body of BPA working as a team.

One crisis threatened in 1962 and 1963. A member drew up a constitution for a new accrediting organization and society. He proposed the name "Medical Photographers Association." BPA members were notified and invited to join. But by this time tangible evidence that our certification program neared finality was becoming manifest. The rival movement died out. BPA had done the spade work on certification, and was the only organization capable of creating a sound registry. Our members recognized this and remained with us—albeit impatient!

## CERTIFICATION

The BPA became committed to a certification program when the Board accepted the 1952 report of Graham Eddy. He presented the recommendations of the Standards Committee. The three main points of the report were: BPA should become a certifying body; standards of prerequisite education and on-the-job training should be established; and certification should be at a "journeyman" level.

The desiderata were established. Yet, while we knew what we wanted to do, how to do it was not so easy to work out. It took about 15 years to do so.

The first comprehensive recounting of the actions planned by the certification group came out in 1953 over the signatures of Paul Flory, Percy Brooks, and David Lubin. The areas of exploration were mapped at that time. The deliberations that came are described in detail further on. But, as pointed out above, several years of other urgent business had needed attention first.

Graham Eddy, who had retired from the Chairmanship of the Standards Committee, gave his final report to the Board during the 1956 Annual Meeting in Rochester, New York. It was a collection of the ideas that had so far surfaced. Many suggestions had been garnered orally at meetings. Written submissions had been received from David Lubin, Luther R. Gilliam (of the Brooklyn VA Hospital), Stanley McComb, and from students in the Medical Photography School of the Rochester [NY] General Hospital.

Earlier that year William Campbell had been appointed by the President to head the Standards Committee. Also selected to work with him were members with special backgrounds. These were:

A biophotographer of long experience in technical and administrative matters—Fred Kent.



Percy Brooks welcomes members to the 1952 Annual Meeting in New York, and Paul Flory outlines plans for certification.

A young man to gauge the needs of newcomers to the field—William H. Atkinson of the Jackson Memorial Hospital, Miami, Florida.

A teacher of medical photography—John J. Beiter of the Rochester [NY] General Hospital, Medical Photography School.

A physician to express the needs of the medical profession—E. E. Myers, M.D., Director of Laboratories, Myers Clinic, Phillipi, West Virginia, President, West Virginia State Medical Association.

A medical photographer from Canada to express the needs of his Canadian colleagues and photographers in biosciences—Charles P. Hodge.

It was felt that the photographers themselves should work out the philosophies and mechanisms of certification. Nevertheless, advisors and consultants in the fields of education, administration, and industry could help in the deliberations.

### Defining the Proposition

The substance of Campbell's 1956 report to the Board is as follows: Biophotographers can well be classified on the basis of what, where, and why they make photographs. Their competence ranges over four levels, from no experience, through basic knowledge, intermediate skills, to a senior grade where departmental administration and communication responsibilities are expected as well as technical proficiency. At what level or levels should BPA certify and educate?

In view of there being so many medical specialties, and the fields in veterinary medicine, agriculture, forestry, and other biosciences, how many kinds of certification should we provide?

BPA could never hope to harbor all biophotographers. Should a certifying body register only BPA members?

Since BPA would most likely be accrediting its own members, whence should the certifying body be drawn?

Other questions from previous internal committee reports, general reports to the membership, and new discussions also needed answers.

Would medical, hospital, university, research, and educational groups help us form a registry and recognize it?

Who should educate aspirants with no experience and provide training and refresher courses for those in the three other levels, in the event that only an intermediate level be certified?

Should personal integrity and professional decorum be guaranteed through the certification program, as well as technical skill?

Was the BPA in a position to conduct personality testing as well as technical exams?

Should thoughts of a "grandfather" provision be entertained for those of long experience?

Should those who would attain the registry have to be re-qualified every three years?

Could a more elaborate Fellowship procedure be worked out to serve in lieu of certification?

Would a diploma from an accredited school of biophotography help toward certification, or even make it unnecessary? If so, where were such schools?

What kind of apprenticeship in existing departments would be acceptable toward certification qualifications?

Should biophotography be treated as a trade or as a profession?

Would unregistered people be prevented from getting employment in the field?

How would the BPA Constitution have to be modified in order to accommodate a board of registry?

How could an educational, examination, and registration program be financed?

Up to this juncture in their lives, those on the committees had believed the most complex pattern they had been faced with was a jigsaw puzzle. Now they were confronted with the challenge of shaping pieces before assembling them.

A matter of terminology was appended to Campbell's report. Many members felt that their work should be classified as "paramedical." However, unlike a laboratory technician doing blood testing, for example, photographers were not performing medical functions. Also, a member in the natural sciences had even less association with medical procedures. So the concept was dropped.

### Resolution Begins

Campbell carried on for two years, when new job-related changes made it necessary for him to relinquish his chairmanship in 1958 to Harold Baitz, then at the VA Hospital in Buffalo, New York.

It had become evident that some form of registry was going to be constituted. Accordingly, one move was to study the experience of the Registry of x-ray technicians. This body was proposed in 1920 and organized in 1923. Registrants were admitted by examination. The procedure was reorganized in 1935, when schools teaching the technique came under scrutiny. At least 10 years of intensive experience was required when the applicant had not graduated from an approved school. By 1943, appropriate educational, practical, and other criteria finally were worked out—23 years after the first proposal.

Clearly, the BPA would be prudent not to act in haste. Note was also made of the fact that the x-ray registry had been instituted by the Radiological Society of North America, not by the technicians. Also, that only one technician was on the board that controlled registration practices.

In 1958, Baitz reported on the decisions arising out of the Campbell report. It was thought that the task could be simplified by certifying first, a level between that requiring "intermediate" skills and the "senior grade" described in Campbell's report. In other words, the applicants should be competent technicians and should have had enough in-service experience to be able to run a small photographic department. They should know the rudiments of communication. A registrant would be classed as "Senior Biological Photographer."

Educational facilities were to be encouraged within and outside BPA. This aspect is presented in the next section.

Participants in the program were to be drawn from technicians of various backgrounds. To be registered they would have to be at the senior level or to raise themselves to it. They were expected to be proficient in the general aspects of their work and field, but not expected to be experts in every photographic technique in all the medical specialties—cinematography, photomicrography, clinical, laboratory, etc. Four fields were envisaged: medical, dental, veterinary, and natural science. It was decided to concentrate on these phases first. If the need should arise for broadening the scope, it could be taken up later. Thus the first big hurdle was surmounted.

In 1960 Baitz circulated a questionnaire to BPA members. It was designed to sound the depth of the mandate his committee had



When Verlin Yamamoto and Graham Eddy talked about the constitutionality of certification measures, members Stokes and Eggar listened.

been given and to investigate the educational aspect. He received 203 replies, about  $\frac{1}{4}$  of the membership. In response to one of the questions asked whether the proposed certification would be of value to biophotographers, the following figures were obtained and are representative of the general response to all the questions.

|  | Yes | Not Sure | No |
|--|-----|----------|----|
| 135 Medical photographers, full-time                         | 124 | 5        | 7  |
| 31 Medical photographers, part-time                          | 23  | 5        | 3  |
| 18 Medical photographers, full-time<br>in specialized fields | 13  | 3        | 2  |
| 14 Directors of medical photography                          | 12  | 2        | 0  |
| 5 Natural science photographers                              | 4   | 1        | 0  |

Results from the entire questionnaire reinforced the demands that had been received over the years and showed that the Standards Committee was on the right track.

The response was small, but it came mainly from our most articulate members—the ones who had been clamoring for some sort of accreditation. We had found out previously from direct contact with the membership that many voices were being raised for certification in comparison with the few, equally loud, *against* it. So it was felt that the silent majority, in face of the actions of the Board and committees, tacitly approved those actions by not re-

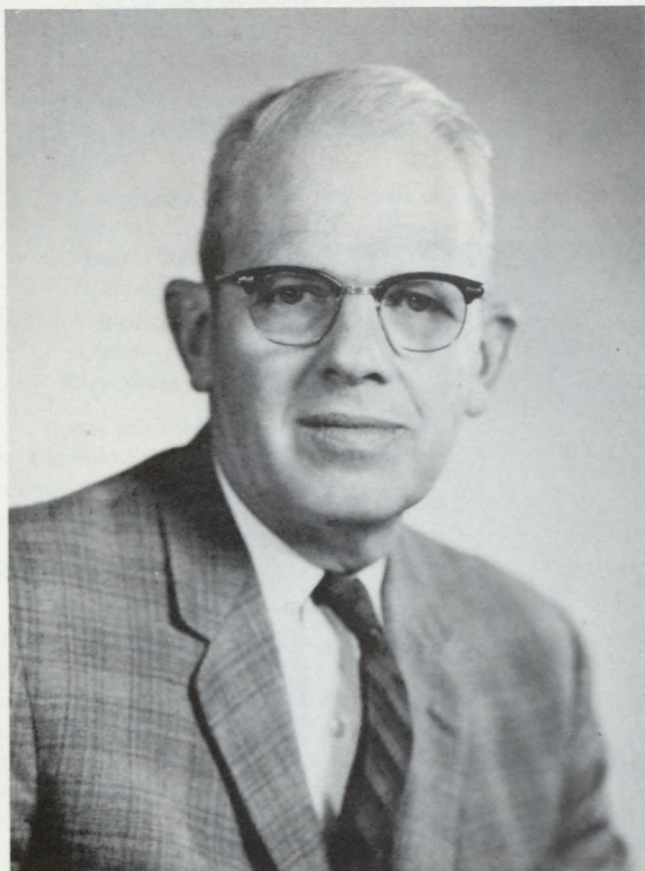
turning the questionnaires. The Board was encouraged by the voices it could hear to intensify efforts toward certification.

### The Certification Committee

In 1961, the Subcommittees on Education and Certification, and the Standards Committee itself, were dissolved. Their responsibilities were given to a Certification Committee, which was the group that carried formal accreditation to the first registrants in 1965.

The new Chairman was Howard Tribe, of the University of Utah College of Medicine, where he was chief of the illustration service. In 1957, I had appointed him to head a then new, ad hoc, Suggestions Committee of the BPA. Its function was to deal with the comments and complaints of all kinds from the membership. With this experience, Tribe was able to collect, amongst other data, uninhibited and diverse ideas on certification that otherwise would not have reached the other long-beleaguered committees. He was able to bring a fresh approach and new vigor to the task.

Certification and education were to be considered together. The decision was to continue to work toward setting an educational level for aspirants, and examining and registering them at the senior level. What is commonly called a grandfather clause was to be included. It was felt that accreditation programs for apprentices and communicators could be worked out later, should the demand so warrant—this has not occurred to date.



Lardner A. Coffey, President, 1964–1965, had recourse to legal aid in changing our Constitution to incorporate a Board of Registry.

Before going much further, the Board asked Verlin Yamamoto and Lardner Coffey, in 1964, to investigate the legal obligations involved. Donald T. Franke, an attorney in Rochester, Minnesota, was retained by BPA as corporation counsel. The gist of his advise was as follows:

A certification program was a proper activity for the BPA. No separate body would be required.

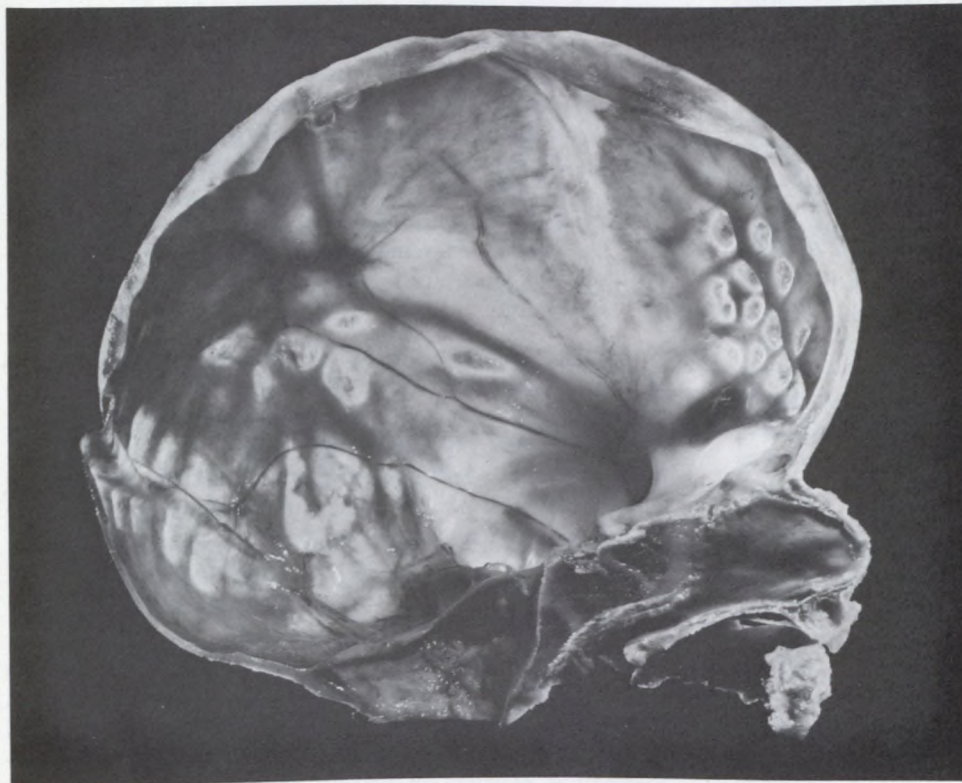
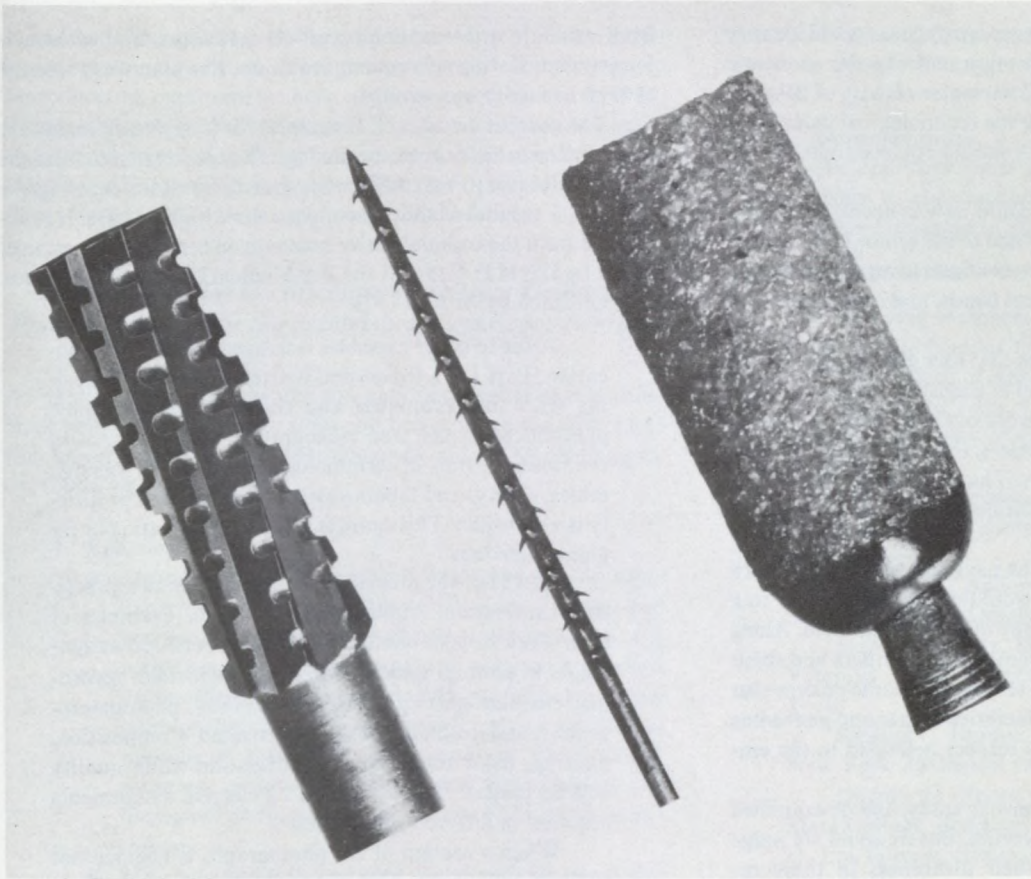
An amendment to the BPA Constitution would have to be enacted to provide for a Board of Registry, giving it the authority to conduct all the functions for registration. There would not need to be any relationship between qualifications for BPA membership and qualifications for certification. (Hence, BPA's desire to register non-members in the program was proper.)

To achieve a desirable, non-self-perpetuating continuity, staggered terms for 9 to 12 members of the Board of Registry should be worked out. An enabling clause should permit the Certification Committee existing at the time of the amendment to be constituted as an ex officio Board of Registry, pro tem. They would thus be empowered to establish the details of the entire program and the rules of succession.

Persons outside the BPA could be on the Board of Registry. It was also desirable to consult with technical advisors, and members of organizations served by BPA members.

A semi-detached Board of Registry was thus legal and desirable. As I had pointed out in a 1955 advisory to the Standards Committee, a big advantage of such a Board would be to take the certification spotlight off the main body of BPA officers and





Biophotographic competency embraces the ability to record the difficult subjects, as well as to carry out routine assignments. *Ectopic Pregnancy*; Photomacrograph of *Dental Tools*; detail of the "rat-trap" cone of the *Douglas Fir*; and *Lacunar Skull*.

members. Too much public emphasis on certification could identify BPA as a group solely interested in aggrandizing the economic status of biophotographers. After all, the major activity of BPA for 30 years had been that of advancing the technological values and applications of biophotography. BPA should not lose sight of such a goal.

The Certification Committee could now concentrate on the Registry. Although it was to be confined to the senior level, opportunity was left for the BPA at large to continue to attract and serve apprentices, photographic department heads, and communicators through our general programs.

Previous investigation had shown that user groups did not wish to be responsible for manning a Board of Registry. In their opinion, the BPA was in the best position to work out a procedure in which they could have confidence. Nevertheless, they did provide us with consultants during the planning years. The BPA Board worked out the necessary revisions in the Constitution and they were approved by the membership.

One of the biggest hurdles in the past had been our concern over what implication certification would carry with respect to a candidate's personal integrity, especially in the medical field. Along with exploring technical curricula, committee members had spent much time looking into psychological testing. It became evident that we did not have the background nor facilities to rate and guarantee character. The responsibility in this respect belonged to the employers.

Nevertheless, applicants would have to study, and be examined by their peers in ethics, safety, and decorum. But we could not judge how diligently they would apply their awareness in these respects.

So we narrowed our aims to accrediting technical proficiency only. This course, too, had inherent difficulties that slowed headway. Our certification should not appear to guarantee that a registrant would perform to his full capacity, even though we could indicate the ability to do excellent work. The obstacle fell away when we realized that all we reasonably could be expected to do was to specify that an applicant had met the technical requirements for the registry. These, of course, would be known to have been based on professional instruction, tenure, and experience as well as photographic education.

### The Registry Initiated

By 1964, all the foregoing considerations and their resolutions were on the table. Tribe and his committee were able to set the wheels of actual certification in motion at last. In those final stages, the Northwest Chapter, powered by Clifford Freehe—who had been appointed by Tribe to be the Secretary of the committee—was particularly assertive and cooperative.

The certification procedure was described in the November 1964 issue of the BPA NEWS. A brochure for applicants was ready, in which requirements and practical, written, and oral exams were described.

Final decisions on some of the questions listed previously were given. The candidate did not have to be a member of BPA, but was required to have had five consecutive years of experience in biophotography. No periodic re-examination was planned. Apprentices and student graduates of the third era would not be prevented from obtaining employment because they were not registered. The goal of registration gave them something to work for if they wished. Qualified members of long experience would be registered first by a procedure described further on. In this way a base could be formed

from which to draw continuing officers, advisors, and examiners for accommodating subsequent aspirants. The plan was thorough enough to satisfy user groups.

The current details and timetables for today's applicants are basically the same as in the beginning. They are available from the Board of Registry. For those who want to consider entering the program, a resumé of the present procedure is given here. It is abstracted from the comprehensive brochure on certification practices edited by David E. Gray, of the VA Medical Center, Des Moines, and published by BPA in 1979.

A fee to cover expenses is to accompany the application. Part I is a supervised written examination dealing with the techniques and theory of photography, photomicrography, and videography. Familiarity with the fundamentals of terminology, anatomy, taxonomy, ethics, safety, and laboratory and institutional propriety is also tested. This exam is given at Association or regional meetings.

Part II of the process is the completion of a practical examination. Applicants are to enter examples of their work in portfolio form. Eighteen required assignments in photography, infrared and ultraviolet recording, cinematography, photomicrography, photomacrography, and graphics are to be illustrated. Composition, lighting, color rendition, and black-and-white quality will be judged. There are also 12 elective assignments required in different specialties.

When a section of the photographs is deemed not to be of sufficiently high quality—the group of photomicrographs, for example—that group is to be redone and resubmitted. A portfolio can be started at any time before this and submitted after passing Part I. Two years from the date of application is allowed for passing the written exam and for completing the practical phase. An extension can be obtained upon payment of a small fee to cover the expense of maintaining records.

Part III is also conducted during Association and regional meetings. It is an oral examination given by examiners selected from the Board of Registry or its advisors. Arrangements can sometimes be made to take this exam locally.

It had been adopted as a firm policy from the start that the oral exam was not to be aimed at failing the applicant. Rather, its purpose was to find out what the applicant did know—especially about topics poorly handled in the written exam. It was felt that some competent photographers might not be able to completely demonstrate their abilities in a written examination. But their proficiency could be disclosed upon open discussion with the examiners.

### Experience Criteria

A minor hurdle had been that of working out a way to embrace the "grandfathers." The practice, common with some organizations, of including all concurrent members in the clause did not seem appropriate for a program to register individual capability. Accordingly, I proposed an Established Experience Provision for furnishing a measure of the competence of our most proficient members. This procedure provided a nucleus for the Registry and a bench mark for subsequent criteria in experience and education. It was kept in effect for two years, so it passed into history in 1966.

It had been thought that this provision would be a sinecure that would result in unwarranted recognition. Hence, it is interesting to reproduce the requirements here, as they were published in 1964. This has advantage (for the reader). The proficiencies and experience then required of these applicants serve to illustrate our concept of a Senior Biological Photographer. The specifications indicate the level toward which current applicants should aspire.

### **Requirements for Certification as a Senior Biological Photographer Under the Established-Experience Provision**

An application for establishing past experience must be submitted on or before September 30, 1966 and be accompanied with a \$35 fee. An applicant must be able to document at least 80 points under the following point system:

#### 1. Experience

A. *Must have had full-time paid, biological photographic experience for a minimum of 10 years, 3 points per year, or have had 20 years of half-time experience, 1½ points per year. (Engagement in an occupation in which his knowledge, experience, and ability in the biological photographic medium is in regular active use for the making of biological photographs or the training, teaching, or adding to the general knowledge of the biological photographic profession.) (75 points maximum.)*

B. *May have had full-time paid commercial photographic experience, 1½ points per year. (10 points maximum.) (75 points maximum for experience, including biological and commercial.)*

#### 2. Training

A. *Photographic, art, and biological subjects.*

1. *1 point per college credit hour passed in photography. Equal credit for trade, commercial, or military photography school. ½ point per semester hour passed for high school or correspondence school. (24 points maximum.)*

2. *Apprentice photographic training, 3 points per year. (6 points maximum.)*

3. *1 point per credit hour for art courses passed in college, art schools, or high school. (10 points maximum.)*

4. *1 point per college credit hour passed in biological subjects (24 points maximum.)*

#### 3. Teaching

A. *Courses taught in photographic or biological subjects. 1 point per college credit hour taught. (12 points maximum.)*

#### 4. Authoring

A. *Photographic or biological books authored, 15 points per book. (30 points maximum.) Book chapters authored, 2 points per chapter. (12 points maximum.)*

B. *Published photographic papers authored, 2 points per paper. (4 points maximum.)*

#### 5. Fellowship

A. *Fellowship honor given for proficiency in the photographic or biological fields, 5 points. (10 points maximum.)*

*imum.) (The total accumulation of 80 points to qualify under this point system must come from at least 3 of the 5 categories listed above.)*

#### 6. Documentation

*An applicant must agree to furnish documentary evidence to substantiate any statement on his application when requested to do so.*

### **The Registry in Action**

The following members, who had carried the certification endeavors to fruition under Tribe's capable leadership, became the first, ex officio, Board of Registry in 1964.

Howard E. Tribe, Chairman, Medical Illustration Service, University of Utah College of Medicine, Salt Lake City, Utah.

Clifford L. Freeche, Recording Secretary, University of Washington, School of Dentistry, Seattle, Washington.

Douglas C. Anderson, Forest Insect Laboratory, Sault Ste. Marie, Ontario, Canada.

Harold C. Baitz, Medical Illustration Laboratory, Veterans Administration Hospital, Buffalo, New York.

Samuel C. Dunton, New York Zoological Society, New York Zoological Park, Bronx, New York.

Donald H. Fritts, Medical Illustrator, Montana State College, Bozeman, Montana.

H. Lou Gibson, Eastman Kodak Company, Rochester, New York.

Stanley J. McComb, Section of Photography, Mayo Clinic, Rochester, Minnesota.

Sidney Shapiro, Department of Visual Aids, The Long Island Jewish Hospital, New Hyde Park, New York. They were all members of BPA and served until the first elected Board of Registry took office in 1967.

Several professional groups had given valuable advice during the formation of the program. Consultant organizations were the American Association of Dental Schools, American College of Hospital Administrators, American College of Surgeons, American Dental Association, American Institute of Biological Sciences, American Medical Association, American Veterinary Medical Association, Canadian Hospital Association, Canadian Medical Association. Individual consultants were Peter Hansell, M.D., British Institute of Photographers, I. B. McNulty, Ph.D., University of Utah, and C. B. Neblette, Ph.D., of the Rochester Institute of Technology.

To develop examination procedures for the various fields, the following specialists were selected: Examination Coordinators—Donald Fritts, Subchairman; Clifford L. Freeche, Dental Photography; Stanley J. McComb, FBPA, Medical Photography; Douglas Anderson, Natural Science Photography; and Donald Fritts, Veterinary Photography. Members of the Certification Committee and other competent BPA members served in an advisory capacity.

The history of the certification group primarily concerned with education is dealt with in the next section. For the Registry, they helped to prepare representative exam questions and useful reading lists for the guidance of applicants and examiners.

Administering the established experience provision and processing the applications for the examinations soon became an exacting responsibility. Early in 1966, Howard Tribe appointed Will E. Renner, then of the VA Hospital, Palo Alto, California to the post



of Secretary of the Registry. As time went on, the administration of the Registry was passed to those who had completed the three examinations.

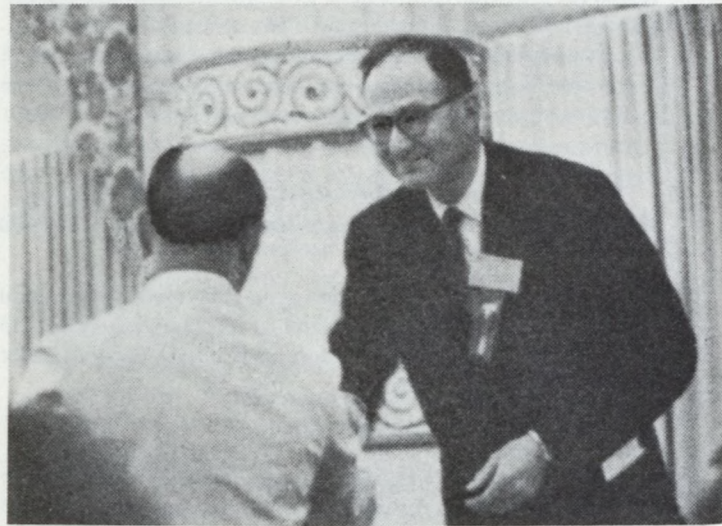
The 35th Annual Meeting, 1965, in Philadelphia, must be regarded as a landmark session. The first 47 biophotographers entitled to put RBP after their names were certified—four of whom were women, seven were from Canada and three from overseas. Also in the group were the first two who had qualified through the examination procedure, rather than on the basis of established experience. They were Will E. Renner and Torleif Gjersvik.\*

Fifteen years of ink, sweat, and migraine had molded a new BPA—one with the organization and responsibility for maintaining a Registry of Biological Photographers.

## EDUCATION COMMITTEE

As already pointed out, educational deliberations were carried out by an Education Subcommittee of the Standards Committee until the Certification Committee was appointed under Howard Tribe in 1961. Like those working on the requirements for accreditation, the group concerned with prerequisite and supplementary education started planning for a high level. Their ideas should not

\* The first woman to complete the examination was Helen Silver of the Chicago Chapter in 1967.



The Certification Committee under Howard Tribe published the plans for a Board of Registry in 1964. Clifford Freehe presented him with the first certificate at the 1965 Annual Meeting in Philadelphia.



THE BOARD OF REGISTRY  
of the  
BIOLOGICAL PHOTOGRAPHIC ASSOCIATION

Attests That:

*Howard E. Tribe*

WHOSE QUALIFICATIONS IN BIOPHOTOGRAPHY  
HAVE BEEN EXAMINED AND FOUND SATISFACTORY  
IS THIS DAY REGISTERED AS

*Senior Biological Photographer*  
in the Field of  
*Medicine*

August 20, 1965

Registrant No. 1



*Garner R. Coffey*  
President, B. P. A.

*Sam Hunter*  
Board of Registry

*Howard E. Tribe*  
Chairman, Board of Registry

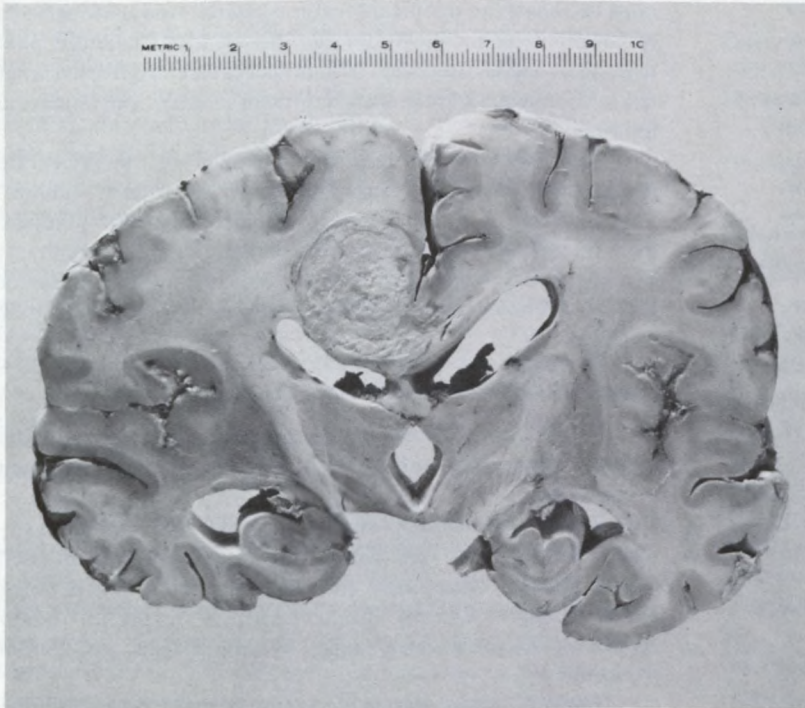
*Harold C. Pritz*  
Board of Registry

*Clifford L. Freehe*  
Secretary, Board of Registry

*Donald H. Fritts*  
Board of Registry



Howard Tribe presents Will Renner and Torleif Gjersvik with the first certificate gained by examination rather than through the "grandfather" procedure.



Section of brain with North American Blastomycosis. A print from the first practical exam for the Registry, made by Will E. Renner.

be looked upon as grandiose. Rather, the committee members were motivated by a desire to establish curricula for providing a standing for biophotographers that would satisfy user groups—educators and administrators. It was also necessary to assure training for the advanced technical and communicative techniques that were rapidly evolving.

Much of the thinking stemmed from a roundtable discussion held at the 1945 Annual Meeting in New York City. McComb, who had been appointed by President Harding to head a Curriculum Committee, arranged for medical artists and biophotographers to exchange ideas regarding what should be taught were a school of illustration to be established, such as one then being considered by Tom Jones. A two-year curriculum was thought to be adequate. The purposes of illustration as well as the techniques should be taught. The biophotographers felt that—assuming a totally inexperienced student—75 percent of the subjects should deal with photography; the rest with science and art.

No attempt was made to formulate a curriculum. However, many who were later to start drawing up our educational agendas were present at that early session.

The 1951 Mollberg paper mentioned previously suggested a four-year college course leading to a degree in biophotography. The slant was medical, but there was room for electives in fields such as plant science and zoology. He put together the following tentative curriculum, which appeared in our *Journal* for 1951 (Vol. 19, 105).

**Freshman Year**—General biology, human anatomy and physiology, introductory general chemistry, fundamentals of photography, composition and Western world literature, college algebra, and plane trigonometry.

**Sophomore Year**—Medical terminology, fundamentals of organic chemistry, biological photography, photomicrography, retouching, advanced composition, and technical report writing.

**Junior Year**—Histology, histological technique, color photography, specialized photography, and introductory general physics.

**Senior Year**—American national government, American state and local government, special problems, and field photography. Electives (8 additional hours per semester or a total of 16 for the senior year): Portrait photography, elementary bacteriology, public health bacteriology, figure drawing, and economics, history or psychology.

The courses listed were being offered at the time by the University of Houston. To modify the program for biophotographers, special courses and laboratory sessions in medical and natural science would have to be arranged. Later on, training in communication appeared also to be advisable. The effect of Mollberg's suggestions is discussed further on.

A college degree would have given the graduates a status and background for great potentiality in their profession. Yet, at least five years of practical experience after graduation was felt necessary for certification.

\* Clinical professor of Pathology, University of Southern California, Los Angeles.

† Director, Medical Audiovisual Institute, American Association of Medical Colleges

‡ Professor of Pathology, New York, New York.

In the fifties, the salaries of biophotographers were improving, but they were still not attractive enough to entice many young people into spending four years in college and five years in photographic internship before professional accreditation could be obtained. Nevertheless, the cultural aspect of a college course was still considered an asset, but not one that was in the purview of BPA to demand or implement. On the other hand, we did not believe that photographic training alone was sufficient. The qualifications for a biomedical photographer were not as clear cut as they are now.

### Basic Requirements

Our members today realize that medical photographers should know enough about anatomy and pathology to understand the clinician's designation of the area to be photographed and enough about hazards to safeguard patients in their studios and themselves in their laboratories. Photographers in other fields must be conversant with the basics of their disciplines. A biophotomicrographer, for example, should know the salient and subtle features of histological and other microscope specimens. Slides suitable for visual inspection are not always best for photography. The photographer should be able to guide laboratory personnel in the preparation of slides for photomicrography.

There is another benefit from gaining knowledge about the subjects photographed. The subject-matter experts who order the work are very familiar with the features of their patients or specimens. They will usually accept any reasonable view or lighting that produces a record that *reminds* them of the subject. The student or colleague for whom the photograph is made does not know the subject, or there would be no need to make the picture. Such viewers must be *shown* the significant features clearly. And showing is the responsibility of the illustrator, not the scientist. Therefore, photographers and artists should be knowledgeable enough to ask what has to be shown, and then show it through suitable orientation and lighting.

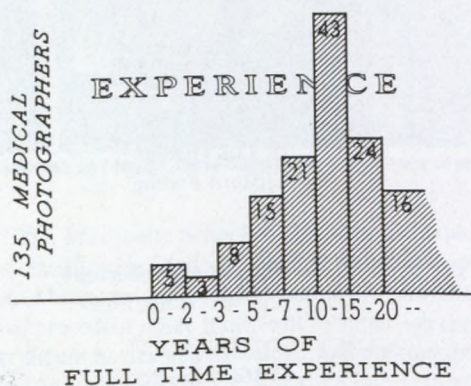
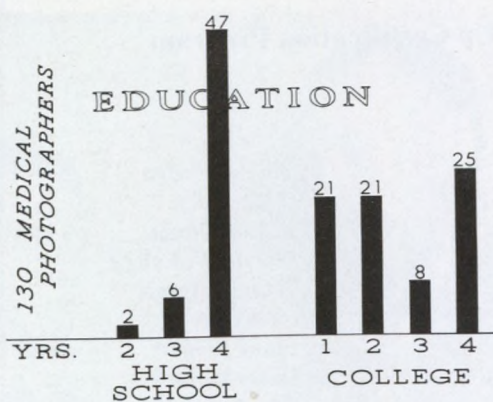
Devising means for offering both photographic and scientific education presented many perplexities to the Education Committee. Various levels of training were considered—from post-graduate work in communication to trade-school basics in photography. It was not until it was decided to certify solely at the level of Senior Biological Photographer that the educational directions could be charted.

### Committee Deliberations

In 1952, the Educational Subcommittee was formed from members of the Standards Committee and its advisors. The group is listed here.

BPA Education Subcommittee, 1952: John J. Beiter, Chairman, Percy Brooks, Tom Jones, Ralph Buchsbaum, H. Russell Fisher, M.D.\*, David S. Ruhe, M.D.†, and advisors at various times: H. Lou Gibson, Charles Hodge, Lucien St. Laurent, Chester Reather, Maurice Richter, M.D.,‡ Warren Sturgis, and Adrian TerLouw.

These members started by studying the 1951 curriculum presented by Mollberg. It turned out that even though those courses were available, no candidate for a degree in biophotography had appeared. In 1954, J. T. Ferris, of the Photography Department, University of Houston, sent us a modified curriculum in response to a query from the educational group. It had been simplified in the academic sector, and expanded with respect to practical, laboratory, clinical, and surgical photography. He noted, however, that such a course, ideal as it looked, had not been activated. This supported



the committee's growing belief that a four-year college course was not the main answer to the requirements they sought.

A change in direction had already taken place. In 1953, the certification group under Percy Brooks and the education group under John Beiter held a joint meeting. A two-year college course was outlined and proposed. Then, 18 months of practical work in a speciality school was to follow.

Instead of the esoteric art course offered by Mollberg, exercises in layout design for scientific exhibits and graphics and lettering would be given. Hospital and departmental administration and the basics of communication would be covered. The schooling was to be followed by eight years of work experience before accreditation would be granted. These considerations lead to the actions soon to come.

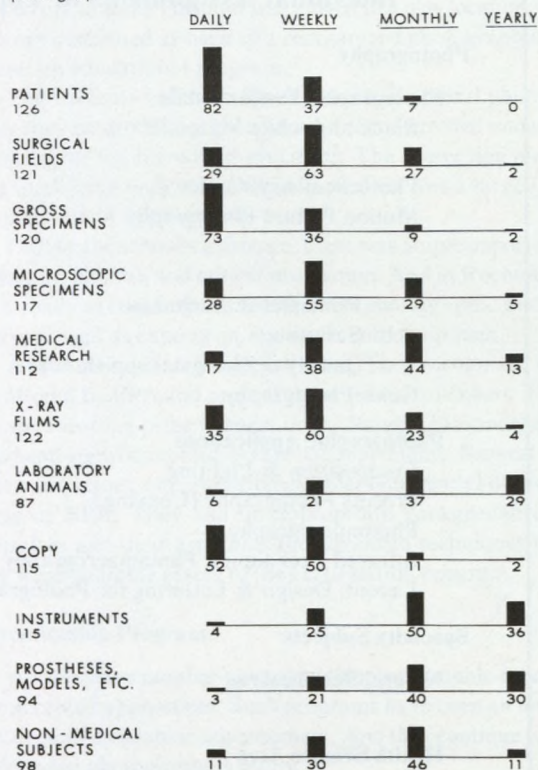
### A General Survey

It may be said that the concepts of the education group were slowly coming to a boil during the first eight years of exploration. In 1960, increased activity was stimulated by a move to involve the BPA membership even more fully. Harold Baitz prepared a questionnaire for determining the educational background of biophotographers then practicing, and to commit them to an expression regarding the education they felt to be prerequisite for competence in the field.

The survey verified the continuing desire for accreditation. It also indicated that about half of those replying had had a four-year college education. The education chart shown here graphs the results.

The Baitz investigation also uncovered the nature of the work done. This indicated the direction that practical training should take. A somewhat surprising finding was the large amount of copying

Number of Medical Photographers who photograph



135 Total

being performed. The need—which persists today—for experience with charts and other graphics was emphasized. The results are shown in the workload chart.

To his report, Baitz appended the results of questions on cinematography. The figures furnished the following table:

|   | Frequently | Occasionally | None |
|---|------------|--------------|------|
| Cinematography by full-time medical photographers | 66         | 45           | 24   |

### The Program Established

By 1961, Howard Tribe's combined Certification Committee had the data it needed for formulating the educational phase of certification. It was concluded that it was not the function of the Board of Registry to question *how* candidates had obtained their knowledge. Aspirants had only to demonstrate that they *had* the requisite knowledge and to demonstrate their competency with practical evidence and logical sources for their training and experience.

BPA would only suggest educational backgrounds and test the fruits of whatever training the applicants had received.

Nevertheless, the Committee did formulate a program of self study, and it also prepared examinations. In the third era BPA found it helpful to inaugurate workshops and refresher courses for those entering the program. For photographers already established, such courses were more palatable than the previously considered three-year reexaminations. Another conclusion was that five years experience, instead of eight years, would be sufficient.

From the above it is clear that BPA's role in actual education, or in encouraged education, at the time of the first certification, had been trimmed to a small one. Upon considering the elaborate pro-

## Individual Assignments of Topics for Setting Up Certification Program 1963

### Photography

#### Photographic Fundamentals

Black-and-white Materials

Charles Hodge  
Denis Masse  
H. Lou Gibson  
Mervin W. LaRue  
Warren Sturgis  
Sy Wexler  
Frank Reindl\*  
Daryl Miller†  
Sam Dunton  
Ben Morton‡

Photochemistry, Optics

Motion Picture Photography

- a. Principles & Technique
- b. Scripting
- c. Quality in biological applications

Color Photography

#### Photographic Applications

Composition & Lighting

Process Photography (Copying)

Photomicrography

Infrared Techniques, Photomacrography

Layout, Design & Lettering for Photographic Reproduction

Verlin Yamamoto  
Al Levin  
John Butterfield  
H. Lou Gibson  
Clifford Freehe

### Specialty Subjects

#### Natural Science Area

Douglas C. Anderson§  
I. B. McNulty, Ph.D.

#### Health Science Area

Dental

Medical

- a. Anatomy-Histology-Medical Terminology
- b. Microbiology
- c. Medical Ethics & Conduct
- d. Patient Photography
- e. Specimen Photography
- f. Safety

Veterinary

Clifford Freehe

John F. Huber, M.D.  
James Dyson, Ph.D.¶  
Harold Baitz  
David Lubin  
Martha Brunings  
Mervin LaRue  
Samuel C. Dunton

\* Westside, VA Hospital, Chicago

† American Dental Association

‡ Bowman Gray School of Medicine, Winston-Salem, North Carolina

§ Forest Insect Laboratory, Ontario, Canada

¶ University of Kansas Medical Center

grams we thought were going to be necessary in 1950, it may look as though BPA almost threw the baby out with the bath water. However, the final program saved and revitalized BPA, and more was done about education when it became necessary in the third era. So our problem all along had been that of finding the baby before it drowned.

It should be noted that, in 1966, the name of Tribe's committee was changed to the Professional Education Committee. Harold Baitz was made Secretary. This committee worked with, but was separate from, the Board of Registry with Will Renner as Secretary and Percy Brooks as Chairman of the Certification Education Committee. Donald Fritts was the BPA educational course program chairman.

### The Examinations

To indicate the breadth of the skills expected of applicants, the listing above is presented. It shows the topics covered in the early examinations. Since the process is essentially the same today, the

lists will be helpful for alerting those taking the tests and for guiding those who may want to direct the studies. Full details on current testing are in the 1979 publication edited by David Gray, Executive Secretary of the Board of Registry.

In all these fields, the requirements for good photographic quality were stressed and explained.

The assignees on the roster also prepared topical reading lists.

## OTHER EDUCATIONAL PROGRAMS

As can now be surmised, a factor over which BPA had no control was the early reluctance of institutions of formal education to activate biophotographic programs for implementing proposed curricula. (The situation did not change appreciably in this respect until our third era, although sporadic attempts were made to initiate programs.)



Stanley McComb and Harris Tuttle discuss the importance of photographic quality.

In 1955, Marquette School of Medicine did explore the possibility of inaugurating a four-year college course in biophotography under Leo Massopust, assisted by Anthony M. Kuzma. However, the lack of precedent made it difficult to apportion the amount of time that should be devoted to biologic and photographic courses. It also became apparent that it would be impractical to prepare appropriate building facilities for them. So the project had to be dropped.

A one-time course of 18 lectures was conducted at the University of Illinois, Chicago Professional Colleges, in 1958, by Maria Ikenberg and Louis Pedigo of the University, and Frank J. Reindl and Leonard Hart of the VA West Side Hospital, Chicago. Sixteen physicians, 14 dentists, and 17 non-professional employees signed up. Most of the lecturers were BPA members.

Foreshadowing the full-time and periodic courses that were to be initiated in our third era was a college course, Botany 199R, added to the curricula of the University of Utah in 1965. It was called "Photography for the Biological Sciences," and was taught by Howard Tribe. It was given for one year only.

Help in our training goals came from three non-academic sources, however: (1) schools which enrolled several students for classroom and working experience; (2) hospital programs for on-the-job training of one or two apprentices; (3) short courses arranged by chapters and others.

The last reached an important magnitude in the third era. A valuable combination of the first two approaches was started in the first era by Chester F. Reather at Johns Hopkins University School of Medicine.

On a more prominent scale was the 18-month course in the Medical Photography School conducted at the Rochester [N.Y.] General Hospital. It was started in 1943 under the aegis of the Department of Pathology and Milton G. Bohrod, M.D. John Beiter headed the school. When he left in 1959, Martha Brunings, a former student, continued its program until 1962. John Gaughan and Charles Reiner, too, were students who became instructors there. They went on to head photographic departments in the Universities of Rochester and Syracuse, respectively. The school was entirely independent of BPA, medical associations, and industry.

Entry to the course was closed in 1960. By then, applications dropped off, and the Hospital was moved to a new location. Martha Brunings continued as head of a reorganized photographic service without an educational program.

The students had had a background in general photography before they entered the school. Most of them enrolled under the GI Bill of Rights for accredited education. The decreasing number of those qualifying under the Bill in the sixties, was a large factor in the reduction in applications.

During the school's existence, there was ample opportunity for laboratory, clinical, and ethical instruction. And in Rochester there was a ready access to guest lecturers in photographic and optical theory, as well as experts on materials and equipment.

About 50 students were graduated. They recognized the benefits offered by BPA and most of them became members. For years they were leading prize winners in our Salons. Most of them went on to head significant photographic departments. Several became officers, directors, or committee members influential in setting the course of BPA. They had an appropriate background to teach themselves and their assistants the advanced techniques to come. They were valuable assets to the certification program.

### Apprenticeship Programs

An unknown number of working biophotographic departments have accepted apprentices. Such programs have been an invaluable asset to biophotographic advancement. And they continue to furnish experienced photographers today.

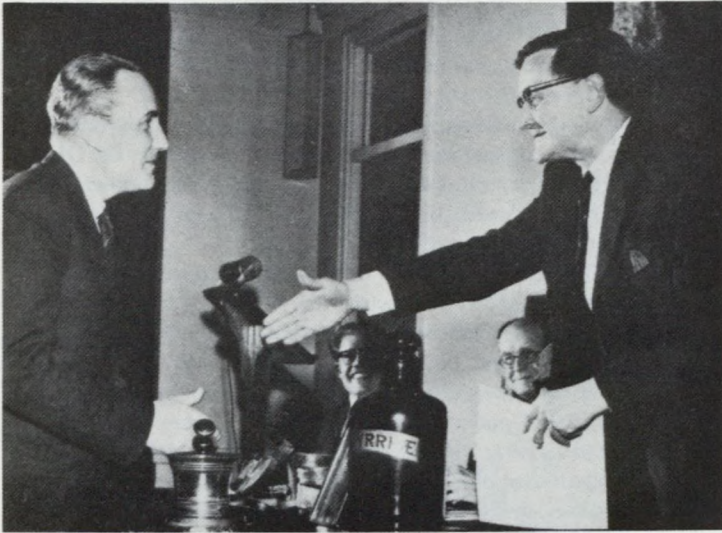
The applicants were expected to have had a background in basic photography. Informal lectures and reading assignments were given, but the main part of the training resulted from working experience.

Probably the most intensive program of this nature was initiated in 1953 by John P. Vetter, of the Western Pennsylvania Hospital in Pittsburgh. He started with one student and he had one or two trainees most of the time. They were apprenticed for 12 months.

Over the 25 years that John has continued this program, he has trained a large number of biophotographers—more than some schools.

A note on apprenticeships, which is still timely today, is appropriate here. During the early period of educational deliberations, Fenwick Small, of the Eastman Kodak Company, prepared a directive on scheduling in-service experience. He felt that those conducting such instruction needed guidance themselves. He had been associated with photographic training projects for the U. S. Navy. He laid out a three-year program as a guide for heads of photographic departments accepting trainees. The tendency had been to relegate all the department "chores" to newcomers, giving them only haphazard opportunities to develop skills behind the camera. Small pointed out that this was not deliberate, but was the result of unawareness in the rush of daily routine. He scheduled an echelon of camera and other assignments for the trainees and stressed supervised self study.

Apprenticeship was particularly important in the second era, because many who had taken courses in schools of general photography were becoming interested in biophotography. Such schools as the Rochester Institute of Technology gave them a good background in the fundamentals of photography, which was a fine precursor for in-service training. Today, there are still those who cannot devote their days exclusively to formal instruction. On-the-job training gives them a chance to reach their goals.



Our British counterparts also benefited in professional recognition from an educational program and founded a Registry. BPA member Peter Hansell is shown here receiving from Sir Clement Price Thomas, the 1967 Lancet award. This was destined for Moshe Ivry of Jerusalem—a BPA member who was unable to go to London to receive it.

### General Considerations

The educational project most akin to that being considered by BPA was the one started by the Institute of British Photographers (now the Institute of Incorporated Photographers). In 1952 the London School of Medical Photography came into being. The photographic departments of eight specialized hospitals and graduate and post-graduate centers pooled an offer to train photographers who had passed the intermediate photographic exams of that Institute. The program started with the first student in 1953. The applicants were required to spend two years gaining intensive practical experience in the various medical specialties. The Institute conducted final exams. Upon passing them, the graduates were admitted to the I.B.P. Register of Medical Photographers. This registry had been initiated in 1945 on an established experience basis.

One need for caution by BPA was made apparent from the IBP venture. Their first examination was too difficult for students to pass. This was traced partly to insufficient training but mainly to standards that were set too high.

One time-consuming phase of our deliberations was the study of registries like that just described. The need for doing so was the existence of incipience of other registries in medical fields. The educational background of the x-ray technicians has already been discussed. The American Society of Clinical Pathologists had established a Registry of Medical Technologists in 1928. In 1951 we found that the American Society of Professional Biologists had formed a Certification Board to sponsor other boards in associated disciplines. The American Association of Medical Assistants inaugurated in 1962 a program of education and registry.

While not a program leading to registration, a modification was allowed in the requirements for the government's rating of photographer (medical), G5-1060-3/9. The Veterans Administration (1950) permitted the substitution of 150 hours of classroom and laboratory instruction for six months of specialized working experience.

At the 1951 BPA Annual Meeting in Boston, Major Floyd C. Egger presented a description of a 352-hour course in military medical photography conducted by the Armed Forces Institute of Pathology for army personnel qualified in general photography. The activities of the U. S. Navy in our first era have already been outlined.

An indication that medical illustrators and photographers could benefit from formal training in their field appeared in a 1961 announcement from the New York State Department of Civil Service. In order to qualify for the required examination for a position, the applicant had to have three years in general photography, illustration, or research. Academic training could be substituted on a year-for-year basis.

Studying such activities gave the Certification Committee additional confidence that the BPA's plans for education and registration were necessary and wisely oriented.

The reflections and accomplishments of those working on the program are dealt with at some length in this history because I believe the 15 years involved comprise one of the most meaningful periods experienced by our Association. This does not mean that other formative decisions and events did not occur during this era. They and the people who influenced them are taken up next.

### ADMINISTRATION

The Board of Governors and Officers of BPA were concerned with routine matters and also with correlating the efforts of the numerous committees. So it is to the activities of the people concerned that one must look for appreciating other important changes that occurred in our second era. The officers are listed here. Since each President served as Vice-President prior to the term in the lead, there is no need to list the second office.

When Lloyd Varden was appointed Editor in 1953 his secretary, Jane Waters, was made official BPA Secretary. She had worked with him in Binghamton at Ansco. In 1945 he went to New York as photographic engineer for Pavelle Color Incorporated. Moving to New York, Jane continued as Secretary. She answered BPA correspondence and wrote up the voluminous organizational notes and communications.

She staffed the first official BPA Headquarters in 1955. Warren Sturgis had put a spare office in Sturgis-Grant Productions at our disposal. There Jane became our first paid employee, on a three-day-per-week basis. As well as the ever-mounting internal and external secretarial work, she attended to routine BPA mailings—in 1956, for example, there were 1936 letters and 5117 pieces of business mail. In 1956 she married Raymond Crouch. She gave up her duties in 1964 after more than 15 years of valued service to BPA.

By 1965 the administrative affairs, apart from the duties of the Board of Governors, were becoming quite complex. The BPA no longer had a headquarters. The mechanics of bulk mailing of dues notices, receipts, ballots, meeting announcements, and non-technical correspondence on BPA affairs became quite taxing to a biophotographer working at home without office facilities or help.

Accordingly in 1965 a professional administrator, Samuel N. Turiel, was engaged by BPA as an Executive Secretary. He and his associates were already providing business management for several scientific organizations. They also assumed the responsibility for publishing the BPA News and assisted in organizing Annual Meetings.



Jane Waters Crouch, hard-working BPA Secretary for 12 years.

## BPA Officers—1950 to 1965

### Presidents

|                          | Years     |
|--------------------------|-----------|
| Oscar W. Richards, Ph.D. | 1950–1951 |
| C. Graham Eddy           | 1952–1953 |
| Warren Sturgis           | 1954–1955 |
| H. Lou Gibson            | 1956–1957 |
| Leo C. Massopust         | 1958–1959 |
| Verlin Y. Yamamoto       | 1960–1961 |
| Mervin W. LaRue          | 1962–1963 |
| Lardner A. Coffey        | 1964–1965 |

### Other Officers

#### Secretary

|                    |           |
|--------------------|-----------|
| Lloyd E. Varden    | 1950–1952 |
| Jane Waters Crouch | 1953–1964 |

#### Treasurer

|               |           |
|---------------|-----------|
| Stella Zimmer | 1935–1951 |
| Albert Levin  | 1952–1965 |

#### Secretary-Treasurer

|              |      |
|--------------|------|
| Albert Levin | 1965 |
|--------------|------|

The new plan turned out to be inefficient and unsatisfactory, partly because Turiel had had no background experience with a scientific-technical group like BPA. The operations of a professional management firm were over-engineered for an administration of our nature and size. The system proved expensive for BPA, yet unprofitable for Turiel. So in 1967 the arrangement was terminated. The administrative paper work was then divided between two BPA members in our third era. Ronald M. Christopher was made Executive Secretary, and Richard C. Matthias, Secretary-Treasurer.

The experience underscored the generous amount of time devoted to our Association by the men and women who kept us running. The confidence of their administrators in the value of BPA efforts and the support they gave to members on their staffs played a large part in consolidating our programs.

One more item of business ought to be noted, especially for nonmembers reading this history. Amendments to the 1962 Constitution were voted in 1964. They sharpened our membership classifications as well as provided for Certification and the House of Delegates. The membership definitions can be summarized as follows:

*Active:* Any person professionally, coincidentally or privately engaged in biophotography; or one who administers such activity; or one who utilizes such illustration services in education, including teachers of biophotography and graphics.

*Affiliate:* Any person whose vocational status does not fit the above definitions, such as those who wish to keep abreast of bioillustration as an adjunct to their main occupational interests, including subscribers to the Journal.

*Sustaining:* Persons, societies, institutions, foundations, laboratories, and manufacturers who wish to further the aims of BPA through donations.

All types of members can participate in BPA activities and services, but only Active members can vote or hold office.

### House of Delegates

This body was instituted to provide better representation for the growing number of members and the consequent increase in administrative details. In 1964, Verlin Yamamoto reported the arrangements made in the Constitution to accommodate a House of Delegates.

“The House is a group of peers elected to it by the chapters on a proportionately representative basis, not as yet formulated but suggested as one delegate for each 25 members. The same proportion is suggested as representation for those members who reside or work in areas in which chapters do not exist. These delegates-at-large will be elected by the House to serve the same terms as those (delegates) elected by the various chapters.”

The House held its first two meetings in 1965, during the Annual Meeting in Philadelphia. The officers pro tem were:

|                      |                    |
|----------------------|--------------------|
| Speaker of the House | Clifford L. Freehe |
| Clerk of the House   | Lawrence B. Brown  |
| Parliamentarian      | Verlin Y. Yamamoto |
| Recording Secretary  | Barbara Jacobs     |
| Advisor              | Samuel N. Turiel   |



## BPA COMMITTEE STRUCTURE, 1957

| Portfolio                  | Chaired by           |
|----------------------------|----------------------|
| Admissions                 | Anne Shiras          |
| AMA Liaison                | Leonard Julin        |
| Annual Meetings            | John J. Beiter       |
| Auditors                   | Sydney Shapiro       |
| Balloting                  | Ella Breckenridge    |
| Awards                     |                      |
| Best Journal Paper         | Frenk C. Reed        |
| Best Meeting Paper         | David Lubin          |
| Louis Schmidt              | C. Graham Eddy       |
| Biological Liaison         | Oscar W. Richards    |
| Chapters                   | Lawrence B. Brown    |
| Editorial                  | H. Lou Gibson        |
| Electron Microscopy        | Stanley Weinreb      |
| Exhibitions                |                      |
| National                   | Chester F. Reather   |
| Chapters                   | Lawrence R. Reynolds |
|                            | E. Lynn Baldwin      |
|                            | Bernard Salb         |
| Fellowship                 | Stanley J. McComb    |
| Secretary                  | Maria Ikenberg       |
| Group Insurance            | Mervin W. LaRue      |
| Historical                 | Stella Zimmer        |
| Motion Picture             | Robert A. Kolvoord   |
| Nominating                 | Chester F. Reather   |
| Permanent Print Collection | H. Lou Gibson        |
| Public Relations           | Charles G. Brownell  |
| Recommended Practices      | Warren Sturgis       |
| Scientific Exhibits        |                      |
| Preparation                | Verlin Yamamoto      |
| Routing                    | Louis Paul Flory     |
| Standards                  | William H. Campbell  |
| Suggestions                | Howard E. Tribe      |

Of the 24 chapters then extant, 22 were represented. Some of the actions taken at those two and subsequent early meetings are outlined here as indication of the functions envisioned for the House. Procedures were modified slightly later on, in order to adjust to circumstances and to give the House an effective representation of the wishes of the members.

Only Delegates could vote and enter into free discussion. Alternates could sit in; they took the duty of delegates when the delegations they stood for were not present. Members could also sit in. They and the alternates not acting as delegates had the right to petition the Chair to speak. The current Vice-President chaired the House. Past presidents were encouraged to sit in. Later on, and to this day the office of Vice-President included the duties of the Speaker of the House. Without such rules the meetings would have become too cumbersome.

The Chairmen of Standing Committees had to be members of the House; those of ad hoc groups were appointed by the Speaker of the House. A House Nominating Committee slated Association candidates for the notice of the Board of Governors, who could also post candidates. The positions involved included members for the

Board of Registry in addition to the nominees for BPA office. The first House Nominating Committee was comprised of Bill Shannon, of the Harvard Medical School, Chairman, with John Muldowney, of the City Hospital, Akron, Leonard Hart, of the VA West Side Hospital, Chicago, Charles Hodge, and Stanley McComb.

Other committees and their chairmen and home chapters were as follows:

Rules and Procedures, Tom Masterson, Northern California

Geographical Apportionment, John Muldowney, Northern Ohio

Association Meetings, Alex Gravesen, Midsouth  
Merit Awards Program, Anne Shiras, Western Pennsylvania

Television, Leonard Hart, Southeastern

Gifts and Bequests, Alfred Benjamin, Southern California  
Admissions, Foster Moyer, Delaware Valley

Grievances and Ethics, Tom Uithoven, Wisconsin

International Affairs, K. M. Acharia, India

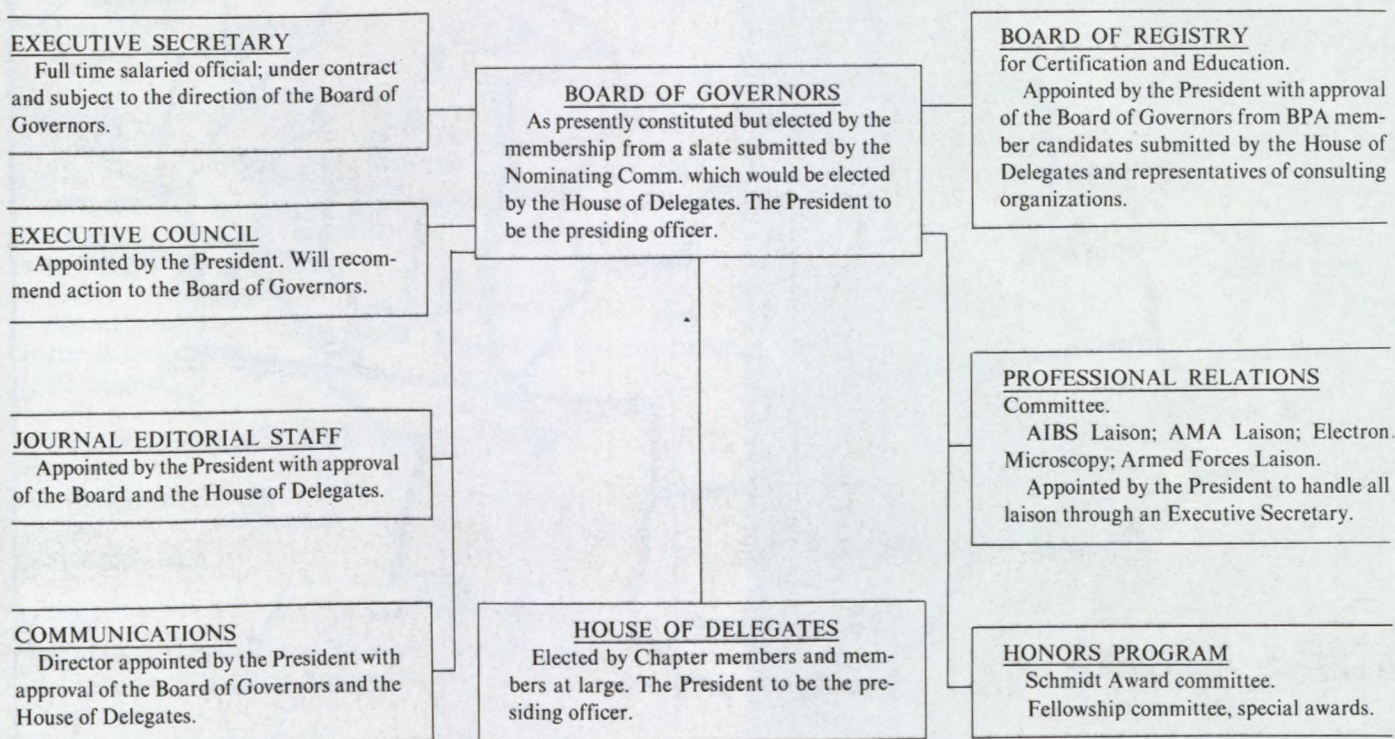
The committee dealing with Association meetings was to advise on policies, rules, and logistics for Annual Meetings and for Regional Symposia.

The countries and their representatives chosen by the International Affairs Committee of the House at these first meetings were: Canada—Marianne Gaettens and Dr. James D. Hurley; England—Robert Whiteley; United States—Jack Arnold, of the Southern California Chapter. In the second year, because of Acharia's move to England, where there was already a delegate, he was replaced by Torleif Gjersvik of the Midsouth Chapter.



Lucien St. Laurent and Charles Hodge work out our ties with the Canadian membership.

## ORGANIZATIONAL STRUCTURE SET UP IN 1964



As BPA grew larger in membership and increased its activities, the House of Delegates became an indispensable representative body for steering our affairs. Their findings and suggestions were passed along to the Board of Governors. The House reported to the membership at large during Annual Business Meetings.

The chart here shows how the House fitted into the BPA structure. The place of the Board of Registry is also indicated, and its function was still that of furnishing information about BPA, but to a broadened scale.

#### Public Relations

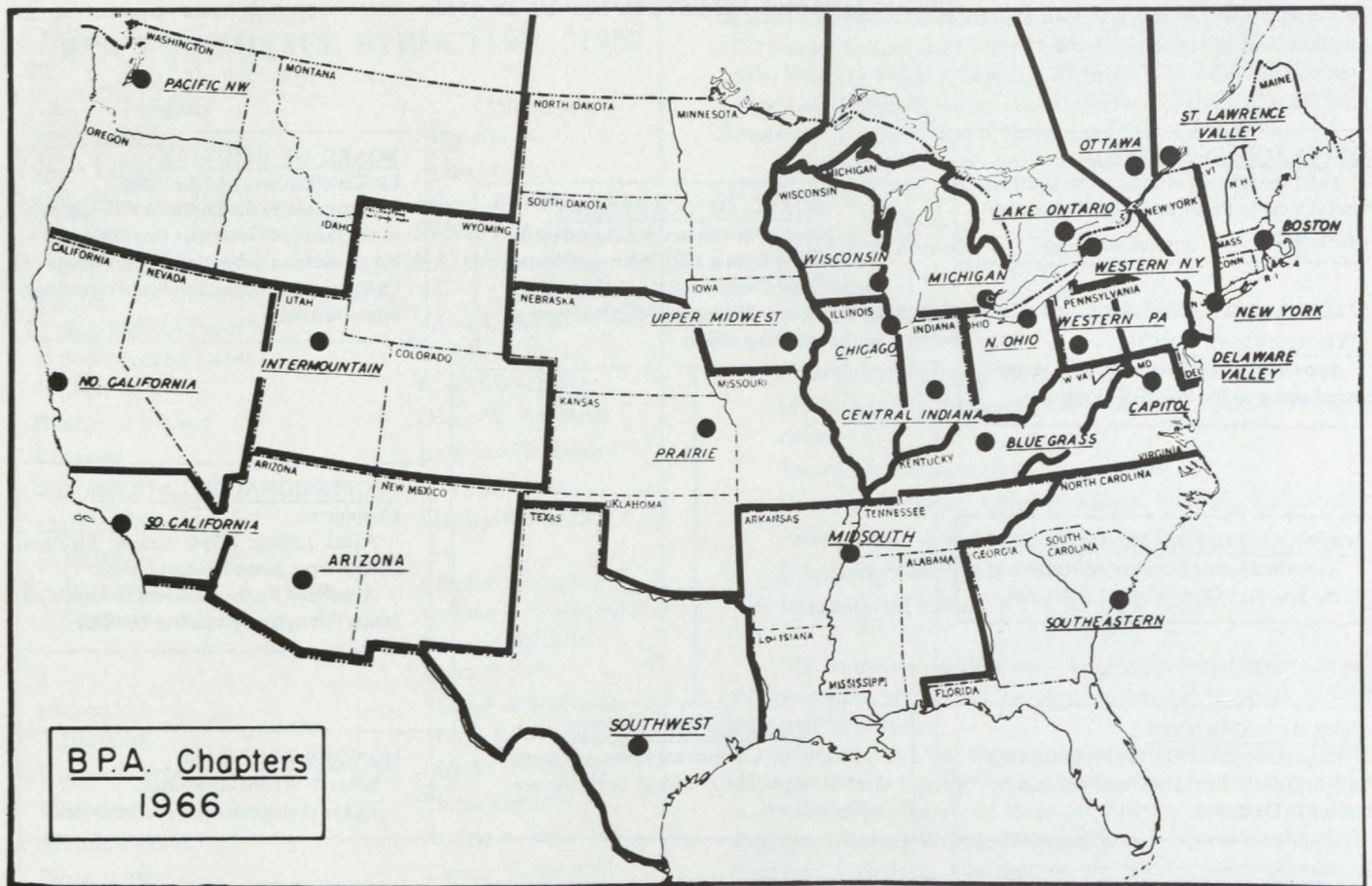
A new responsibility appeared on the chart, that of the Communications Committee. This grew out of the Public Relations Committee formed in 1957 under Charles Brownell. The head of the new group was Carroll Weiss of the Clinical Research Division, Schering Corporation. His function was to handle publicity for BPA. In particular, local Annual Meeting committees were advised to appoint a Publicity Chairman for attracting members and visitors and for announcing accomplishments. During the event, press and

professional releases were to be distributed for local and national interest. Weiss also asked John V. Butterfield of the Bausch and Lomb Optical Company to prepare a brochure presenting the aims of BPA to new and prospective members.

#### STANDARD PROCEDURES

The duties of the Recommended Practices Committee were defined in 1956. Warren Sturgis, who headed the activities, served as liaison agent with the chairmen of all the other committees. They were asked to define and write out their own duties and procedures to facilitate continuity. The Recommended Practices Committee was not to dictate their policies but could function in an advisory capacity. Sturgis could act as a gadfly when the Board desired faster action on the part of a committee.

Reference note books were assembled so that any new chairman could refer to his particular portfolio. He was supposed to keep his notes up to date for successors.



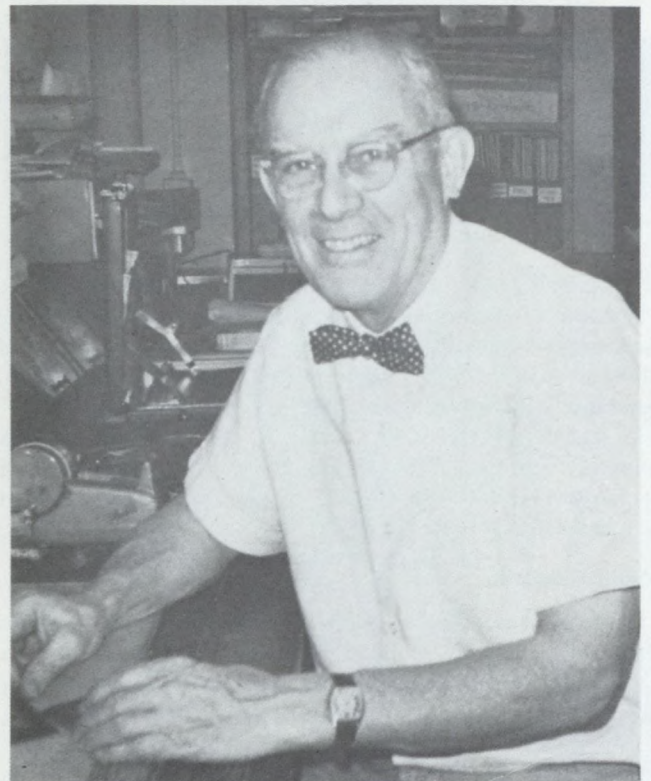
### For Chapters

One of the first details needing Warren's attention was the strengthening of the relationships between chapter members and the national organization. All chapter members were not required to be national members—only the local officers. Therefore, many chapter members were not receiving the *Journal* and other printed material evidencing the national efforts to better their technical and professional status.

Sturgis cooperated with Brown in preparing Newsletter material especially for chapters. He also guided Brown in examining the constitutional conformity of all the chapters. He passed along Stella Zimmer's plea for chapters to appoint historians to gather and record an account of the local progress.\*

Chapters were undergoing conformity and shakedown exercises in the second era. The valuable expansion in their activities is one of the most significant features of the third era. So, Chapter contributions are dealt with at good length in the next part of this history. However, there is one more chapter item that is especially pertinent to the account of the second era.

\* One of the problems of writing this history has been to find suitable old photographs. The albums supplied records of national events but many chapter illustrations had to be copied from the *BPA NEWS*. Chapters could be kind now to a struggling historian for the 100-year celebration as well as collect photographs for some of their own future nostalgic sessions.



Larry Brown takes a work break after putting an issue of the Newsletter to bed.

## CHAPTER STATUS IN 1965

| Chapter                                    | Officer*                     |
|--|------------------------------|
| Arizona-New Mexico (formerly Arizona)      | Cecil D. Gilliam             |
| Boston                                     | William Shannon              |
| Northern California                        | Tom Masterson                |
| Southern California                        | Alfred Benjamin              |
| Capitol                                    | J. Lindsay Burch             |
| Central Indiana                            | George Cave                  |
| Chicago (later Abraham Lincoln-Illinois)   | Virginia Zotas               |
| Delaware Valley (formerly Philadelphia)    | Robert E. David              |
| Indian (later inactive)                    | Dr. Sunder J. Vazirani       |
| Lake Ontario                               | Ivan Gareau                  |
| Michigan                                   | Arthur Bowden                |
| Mid-South (formerly Arkansas)              | Alex Gravesen                |
| New York                                   | Lewis Koster                 |
| Northern Ohio                              | Joseph Merva                 |
| Ottawa                                     | Dr. D. J. Hurley             |
| Pacific Northwest                          | Dale A. Tilly<br>(secretary) |
| Prairie                                    | Richard Corliss              |
| Southeastern (formerly West Virginia)      | Thomas Lanier                |
| St. Lawrence Valley (later Montreal)       | Jean Garneau                 |
| Upper Midwest                              | Leo Johnson                  |
| Western New York (formerly Rochester)      | Harold C. Baitz              |
| Western Pennsylvania (formerly Pittsburgh) | H. Paul Newman               |
| Wisconsin                                  | Thomas C. Uithoven           |

\* Chairman or President, unless otherwise stated.



Warren Sturgis proposes and outlines the aims of a Recommended Practices Committee.

The Pacific Northwest Chapter held, and still holds, some of its meetings in Vancouver. Several BPA members there also belonged to the Scientific and Industrial Photographers (S.I.P.) of Vancouver. This group hosts the BPA sessions. The S.I.P. grew out of the Medical Photographers Association of British Columbia, founded in 1951, before there was any BPA activity in Western Canada. Bill Grant of the Shaughnessy Hospital was its President. He was assigned by Ken Buckley, who is still active in maintaining BPA liaison with the group. The Secretary was Barbara Best of the British Columbia Cancer Institute.

#### For Awards

Procedures for granting recognition of Salon merits and other achievements had grown up without any consistent pattern. In 1956 Graham Eddy was appointed to study standards for awards as part of his duties on the Standards Committee. He correlated the work of award committees and some mutually acceptable goals resulted. Richard C. Matthias of the Texas Chapter carried on the work, and by 1962 when he was Chairman of the Honors Committee, he had worked out formalized criteria and uniform award plaques and certificates. Ronald Christopher helped with the designs, and later continued the program.

About this time, regulations for judging photographs, exhibits, and motion pictures became the responsibilities of Robert Kolvoord of the M. D. Anderson Hospital in Houston, and with the help of Sidney Shapiro.

#### For Annual Meetings

Our meetings were always arranged without serious problems arising. As they grew larger, procedures for alleviating the wear and tear on local workers became imperative. Nowhere was the need greater for a continuity of information. After each event, reports were passed along to the Vice-President. Nevertheless, they varied in promptness, detail, and pertinency; hence, so did the guidelines that could be handed down to local committees.

To aid in the preparation of the meetings manual that was being considered by the Recommended Practices Committee at the time, the committees for the August 27-31, 1956 Annual Meeting in Rochester, New York, noted their problems and progress in the minutes of their meetings, as they went along. One new item was a detailed timetable, which was worked out at their first meeting. It was too long to repeat here. It laid out, on a week-by-week basis, the tasks to be accomplished. As an exhibit for those who have had



Ralph Creer presents Leonard Julin with the BPA Annual Award.

no experience with the many details involved in staging Annual Meetings, typical items are summarized here.

...

*September 15 (1955)*

Chapter to elect local chairman, who then appoints all committees.

*September 20*

Arrange for printer, get estimates, order local meeting stationery.

...

*September 25*

Notify local Convention Bureau. Make hotel arrangements.

...

*October 15*

Mail letters to commercial exhibitors.

...

*December 15*

Send out requests for papers and first meeting announcements and program prospectus to the Journal printer for addressographing.

...

*January 25 (1956)*

Make the first mailing to membership.

...

*March 30*

Deadline for advertising in the Program and Salon Compendium.

...

*May 1*

Deadline for commercial exhibitors. Start hotel preparations. (The hotel had been tentatively signed prior to the 1955 bid and a contract arranged upon return from the Annual Meeting.)

...

*June 1*

Deadline for Salon entries and for papers. Make final arrangements for judging Salon.

*June 11*

Finish writing the Compendium.

...

*July 26*

Compendium due from printer.

*July 30*

Finish mailing Compendium to all members.

...

*August 20*

Work out final details for registration, meetings, social functions, the refresher course on color photography, and other activities.

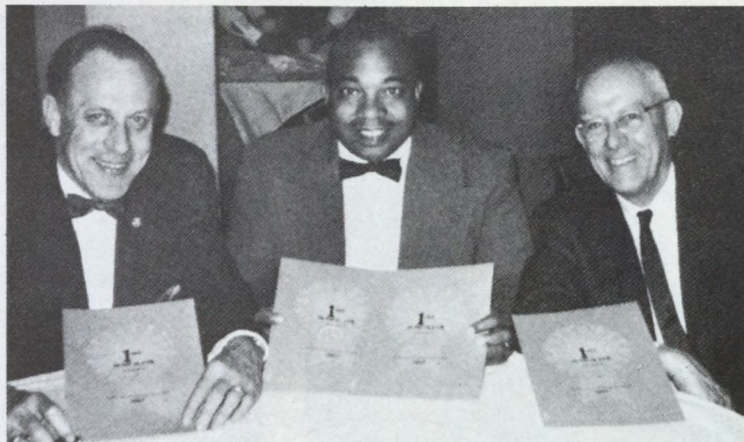
Data like these had been gathered over the years and passed along somewhat haphazardly. Timetables had been sketchy and not rigidly followed. So the Rochester example renewed interest in standardization. By the end of 1962, Lardner Coffey had compiled the first systematic manual of procedures. It was sent to J. Robert Dant of the VA Hospital in Atlanta for the 1963 meeting in that city. And, at last, we were welcomed by a local chairman without a haggard look.

The need for such a manual had become accentuated by the complexity of our 1962 meeting in San Francisco. This was an ambitious venture that had not been tried before. It is worth describing here because the lessons learned are valuable for those planning some of our special meetings in the future, such as the many joint meetings given in the third era.

Tom Masterson of the Department of Photography, Stanford University, was Chairman of the Northern California Chapter, and Sam Ehrlich was the local meeting Chairman. The group proposed an innovative joint conference to the Extension Division of the



Plaques, complete with attached gavel, were given to past Presidents and Chairmen of chapters.



In addition to earning BPA awards, members often were recognized by other organizations. Bob Ullrich, Marshall Stokes and Larry Brown display the certificates of honor they received from the Technical Art Exhibit of the Boston Museum of Science in 1967.

University of California. The idea was to raise the prestige and expertise of BPA members and to attract scientists outside the medical field, as well as those in it, so they could appraise the technical and communicative advances being made in biophotography. The University welcomed the idea. The BPA Board, which does not dictate to chapters in such matters, approved the meeting.

An excellent conference ensued, but many difficulties arose along the way. During the planning, the Extension Division personnel, who were accustomed to serving adult education programs and working with the Ph.D. community, were not made cognizant of the more limited scope of BPA. They invested a sizeable sum of money in the venture and promoted the conference and a call for papers in scientific channels. They assumed BPA would advise its members in the usual way. The chapter and the Board realized this rather late, causing much dissatisfaction among our members.

The University's expenses were high, so much more than the customary registration fee was necessitated. This too, caused many complaints. Again, to some members, the autonomy of BPA had been usurped. Responsibilities had not been spelled out in the beginning. At the conference, several concomittant sessions were conducted in order to accommodate the large number of papers. Some members were irked by this, because they had not become used to the occasional necessity for the move—which is recognized by members today.

Another conflict arose because the University and the Chapter planners, as well as many non-BPA people in attendance, expected all the papers to be at a Ph.D. level. They did not realize that, in spite of the special nature of the meeting, BPA was obliged to offer data for both experienced and inexperienced attendees. Information helpful to routine work as well as presentations of technical advances had always comprised our programs. This entailed some repetition of elementary topics, because BPA served a "parade", not a "class reunion."

The biggest problem arose because procedures for publishing the papers were not worked out ahead of time. Constitutionally, papers given at our Annual Meetings become the property of BPA. The Extension Division thought that the complete record of the conference was to be published by the University. The BPA proposed an enlarged issue of the Journal, which would give the University full recognition of their participation. This offer was not accepted. Some of the papers appeared in subsequent issues of the Journal. But the confusion dampened our enthusiasm to gather them all for a special issue. Part of the reason arose from a mechanical problem beyond our control. Participants had not been obligated to hand in a written paper at the conference. So arrangements were made to have our member, Jack Fason, of the VA Hospital, Denver, tape the proceedings for transcription with his own equipment. However, the management of the conference hotel did not permit him to do so. Then the hotel's sound system broke down, and papers given during the first two days could not be recorded.

In spite of the vicissitudes described, many compliments on the conference were received—chiefly from those who were not BPA members. Yet we could not bask in them because it was not appreciated that BPA initiated the affair. Hence, it was the University that was asked to sponsor more sessions of this nature—not the BPA.

The experience afforded by this meeting and a certain amount of after-shock to the chapter demonstrated that good ideas and intentions alone are not enough to ensure complete success. The roles of the organizers of such meetings and the channels of communication clearly must be worked out in advance. Then it is possible to conduct meetings that will attract more non-medical biophotographers to BPA.

Before closing the discussion of Annual Meetings it should be pointed out that, even with recourse to an effective manual, the committees must be alert for some unforeseen problems. For example, on the occasion of the 1961 meeting in Chicago the contract with the convention hotel was not firm enough. The result was that after all the preliminaries for meetings, reservations, and Salon space were announced by BPA, the hotel cancelled their obligation at the last minute. In spite of the confusion that arose, the heroic efforts of the Chapter to move to another hotel succeeded, and an effective session was mounted.

A few years previously, a convening group lodged in the Boston hotel slated for BPA decided to stay on for one day more than their



Avis Gregerson and Bill Martinsen discuss techniques for optimum photomicrography.



Stephen Dittmann and Eleanor Sweezy discuss the symbiosis of photography, art and television.

allotted period. Our members had to be housed all over Boston for one night. Fortunately the meeting rooms and exhibition space were not affected.

The lesson is: go by the book, but expect the unexpected.

#### CITIES HOSTING BPA ANNUAL MEETINGS

| Year | Location       | Chairman           |
|------|----------------|--------------------|
| 1951 | Boston         | Ferninard Harding  |
| 1952 | New York       | Percy W. Brooks    |
| 1953 | Los Angeles    | W. L. M. Martinsen |
| 1954 | Atlantic City  | William J. Taylor  |
| 1955 | Milwaukee      | Leo Massopust      |
| 1956 | Rochester, NY  | John J. Beiter     |
| 1957 | Rochester, MN  | Lardner A. Coffey  |
| 1958 | Washington     | Stephen Dittmann   |
| 1959 | Montreal       | Charles P. Hodge   |
| 1960 | Salt Lake City | Howard Tribe       |
| 1961 | Chicago        | Mervin W. LaRue    |
| 1962 | San Francisco  | Sam Ehrlich        |
| 1963 | Atlanta        | J. Robert Dant     |
| 1964 | New York       | Warren Sturgis     |
| 1965 | Philadelphia   | Richard Matthias   |

It is not practical to go into detail about the technical programs of the Annual Meetings. The topics that were covered are reflected in the highlights of the Journal articles outlined further on, for most of the important advances were published. (Some of the meetings of the third era are fully described.)

## GENERAL SERVICES

The Journal, Annual Meetings, and the Board of Registry were beneficial to all members. In addition, chapter activities offered participation on a regional level. The national committees augmented local efforts by furnishing traveling exhibitions and recorded lectures. They also encouraged regional meetings, and in the third era these were often combined with refresher courses and exam sessions. For a short period, we had a group insurance scheme. The historical albums for use at Annual Meetings are already described. It should be noted that Robert Teevan, assistant to Pierre LeDoux, was appointed official BPA photographer for Annual Meetings in 1962, when Pierre retired.

### Group Insurance

The BPA was often approached by insurance companies for the purpose of initiating a group plan. In 1954 we offered accident and sickness disability plans to our members. The rates were much less than those then current for individual policies.

The plan had been discussed at meetings and the company given space in the Journal several times. Nevertheless, the response was small, probably because members had other coverages. In 1961 the company advised us that they had already paid out more in benefits than the funds received from premiums. Actuarially they needed a greater participation. However, our group was too small a pool to furnish enough new interest. So the writing of new policies was terminated in that year.

### Traveling Exhibitions

Some of the traveling print collections for loan were still available and new ones were introduced. Several collections of prints and exhibit materials could be borrowed. The borrowers paid return transportation on prints and both-way costs on exhibits. The shows and their custodians in 1965 are listed here.

**Permanent Print Collection:** Representative selections from past Salons. E. Lynn Baldwin, then of the College of Osteopathic Medicine, Des Moines, Iowa.

**Traveling Print Exhibit:** The best photographs from the current Salon. Lynn Baldwin, and in Canada, Douglas G. Anderson, of the Forest Insect Laboratory, Sault Ste. Marie.

**Electron Microscope Prints:** About 50 mounted prints were selected from the Annual Meeting of the Electron Microscope Society of America. Stanley Weinreb, Ph.D., of Rutgers University.

**Scientific Exhibits:** Self-contained units for convention booths. Two topics; the preparation of photographs for (a) publication, (b) for the oral paper. Ronald Christopher.



Photo taken in the Rockies when Jack Fason and Marguerite hosted some of his colleagues in Denver. Common interests have made our members a friendly group, so exchanged visits constitute a fringe benefit when traveling.



Lynn Baldwin, 1960, in his laboratory. (Photograph by Joseph K. Brown, then of the VA facility in Des Moines.)

Some other scientific exhibits from our Annual Meetings were offered to professional groups by the Scientific Exhibits Committee, under the chairmanship of Paul Flory in the fifties, and later by Frank Reindl. One on the "Preparation of Materials for Lantern Slides" was eminently successful at the 1963 AMA Convention. However, other showings at regional professional meetings were poorly attended. Since BPA members who erected them found these exhibits expensive to ship and time-consuming to attend, the project was dropped.

#### Recorded Slide/Tape Lectures

For several years, Jack Fason taped key lectures at our Annual Meetings. Transcripts sometimes served as basis for Journal papers. By 1965, some had been organized into sets of slides and tapes for loan to BPA members. His productions and some from Britain were circulated by Larry Brown. Titles and authors were as follows:

"Clinical Photography in Dentistry" by Clifford Freehe

"Commentary on the 1958 Traveling Print Exhibit" by H. Lou Gibson

"Clinical Fluorography," "Keratography," and "Standardization and Serial Recording in Clinical Photography," all three by Peter Hansell

"The Need for a Medical Communications Expert in a Medical Center" by John Huber (tape only)

"Duplication and Correction of Color Transparencies" by John Vetter

The extent and content of our loan services are listed in current issues of the BPA NEWS.

Other national and local activities have lessened the demand for such programs. Nevertheless, further recourse to these loan services is worth considering, in view of the perennial problem of obtaining lectures for chapter meetings. The number of recorded lectures increased impressively early in the third era. In 1968, Marshall Stokes, of the VA Hospital, Boston, the new custodian, reported 27 lectures that had become available.

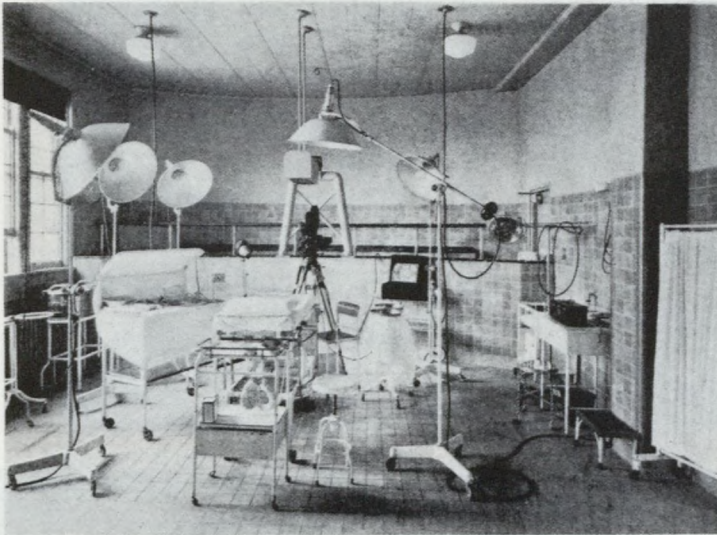
#### Regional Meetings

The concept of such meetings originated at the 1957 Annual Meeting in Rochester, Minnesota. A contingent of members from California—Avis Gregersen, then of the USC Medical School, Los Angeles, Paul Tracy, of Stanford University School of Medicine, Tom Masterson, then of UCLA School of Medicine, and Will Renner—believed it would be fruitful to combine the resources of the northern and southern chapters in their state to reproduce a BPA Annual Meeting on a smaller scale. Such a gathering would be useful to a larger group than that attending a routine chapter meeting.

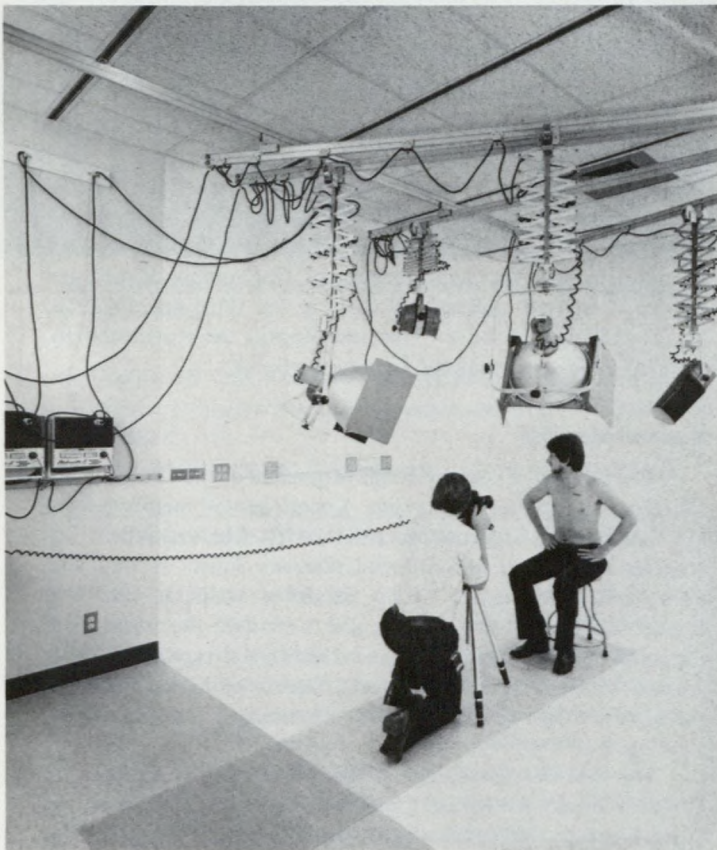
The First Western Regional Meeting was held in February of 1958 at the UCLA Medical Center, hosted by the Southern California Chapter. The session incorporated a production workshop. The event has been alternated between the two chapters ever since. The second included liaison and a visit to a scientific exhibit mounted by the California Medical Association.

Members from adjacent chapters attended as the sessions became well known. Worthwhile practice in preparing papers and arranging meetings was gained—in addition to the advancement of technical proficiency. The discipline of preparing a paper is helpful in organizing the daily routine.





An early studio set up for photographing the delivery of babies. The stand lights in use at the time made a cluttered floor unavoidable.



An advanced studio in the Texas Medical Center, Houston. Electronic flash units hung from ceiling rails furnish the epitome of simple illumination equipment. (Courtesy of Lynn Baldwin)

Our Upper Midwest Chapter was soon to follow the lead. The group arranged the first Midwestern Regional Meeting in 1959. The locale was Iowa City, with Charles Deutch of the VA Hospital, Iowa City, as Chairman. The BPA Board arranged to hold its Spring Meeting during the event. In the third era, regional meetings and their courses and workshops became common, as their value was recognized. They were a large factor in the maturation of our Association.

## DEPARTMENT EXPANSION

A notable increase in the utility of biophotographic departments occurred in the second era. The number and extent of illustration services necessitated larger and efficiently planned quarters. In 1958 Leonard Julin described in the *Journal* the extensive new department at the Mayo Clinic. It was representative of the many new facilities that sprang up in this period.

In addition to the customary studio for patients, copying and other specialized areas, and processing rooms, the volume of work demanded a reception room, an order and pick-up section, enlarged filing space, and an office for consultations. The studio for patients was 18 by 36 feet for full-length studies and cinematography. An 8½ by 17 foot bay was used for closeups.

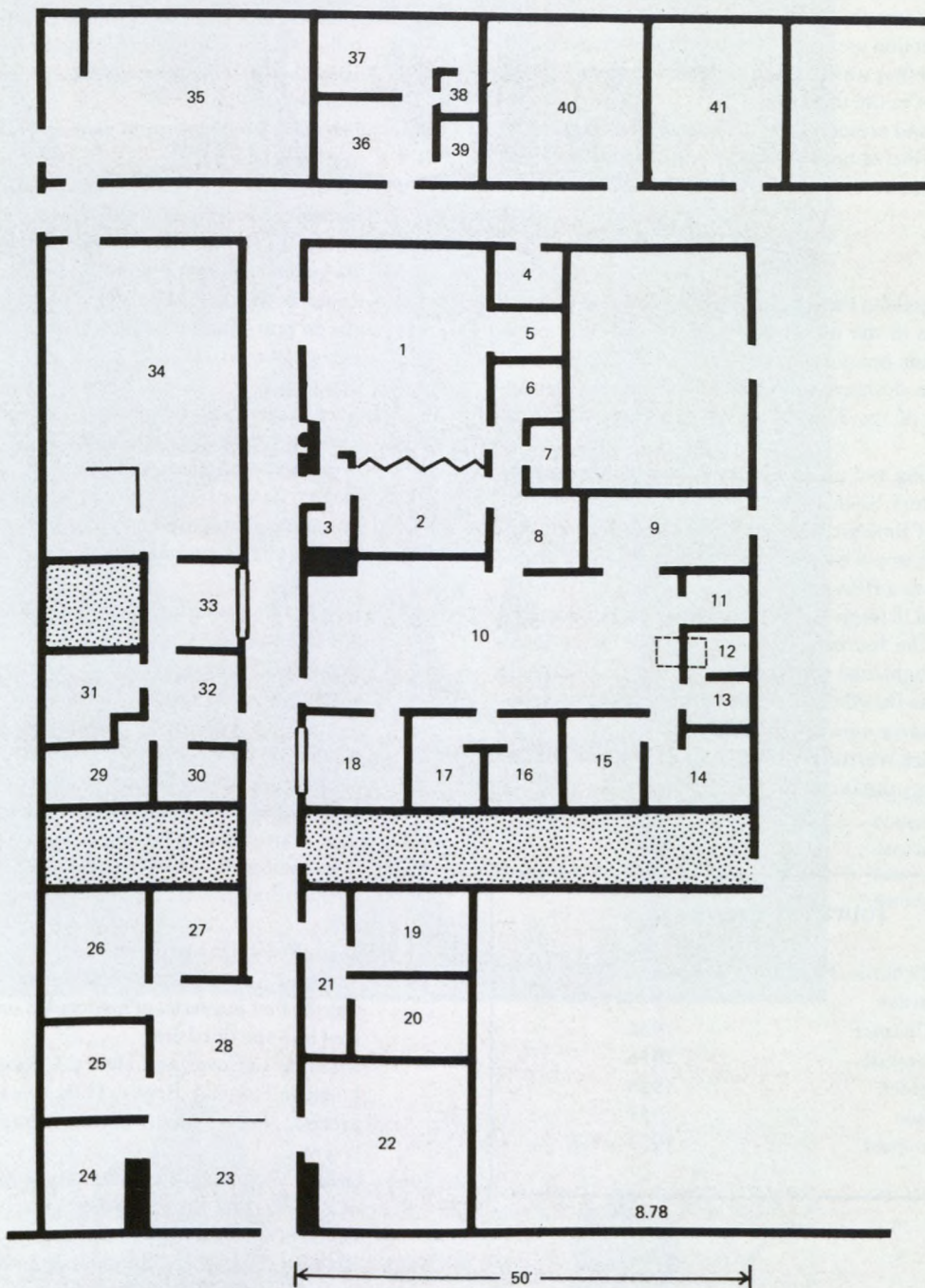
Overhead reflector flood lights, Colortran® controlled, were attached to a framework on the 11-foot ceiling of the main studio. These caught the trend toward clearing the floor of a clutter of stand lights and an entanglement of cords. Later, electronic flash lamps on hanging lazy tongs became the vogue.

A general utility studio served for arranging special setups, where they could be left undisturbed until a project was finished. It also housed an animation stand. Rooms for editing motion picture footage and for sound recording were included as well as a room that could be darkened for photomicrography. However, gross specimens were photographed in a laboratory in a nearby building. In that way, contamination of patient areas was precluded.

Art work was done in another area and was not under the direction of the Section of Photography. (In many new departments, this function was incorporated into the illustration service.) In all, 7,800 square feet were assigned to the Mayo department. It accommodated 14 full-time employees. The construction of similar setups was no doubt stimulated by this example. At our 1957 Annual Meeting there, members were impressed during a tour through the new quarters.

In 1965 several articles on departments appeared in the *Journal*. Smialowski and Smialowski and Currie, described their advanced facility and also a layout for the efficient projection theater at St. Michael's Hospital in Toronto. In contrast, Paul Showstark, of the Beth Israel Hospital in Boston, presented a "portable" unit. This was a cabinet on wheels. It contained camera, accessories, and lights, and bore an adjustable camera support. It could be transported readily to various areas for clinical, surgical, or laboratory photography. The unit was designed for institutions that had not yet expanded their facilities. Modifications of this cabinet are still in use today in full-fledged departments, for it is useful for photography in distant locations.

So much new building was going on in this era that the Eastman Kodak Company inaugurated a special service. This offered practical layout plans on receipt of the floor plans of individual space allocations. Many BPA members are now working in departments based on the suggestions. The third era was marked not so much by building as by a great increase in the number of photographers working in these departments.



**The layout of the Photographic Department at the University of Rochester (New York) Medical Center. (Courtesy of Nicholas Graver) Medical Photography**—1. Photo studio; 2. Small studio; 3. Dressing room and lavatory; 4. Supplies; 5. Equipment/props; 6. Photomicrography; 7. Film loading; 8. Copying—B&W; 9. Copying—color, radiographs, duplicating; 10. Main photo lab work room—finishing; 11. Film processing—B&W manual; 12. Film processing—B&W machine; 13. Chemical mixing and preparation; 14. Film processing—color; 15. Enlarging—special projects, and B&W film machine; 16. Enlarging, contact printing; 17. Enlarging, Royalprint processor; 18. Business counter—Photoreception; 19. Photosupervisor; 20. Business manager; and 21. Library—educational materials. **Medical Education**—22. Conference Room; 23. Reception; 24. Faculty; 25. Faculty; 26. Chairman; 27. Faculty; and 28. Secretary. **Medical Illustration**—29. Tracing machine; 30. Combined business affairs; 31. Illustration supervisor; 32. Combined secretary, phones, appointments; 33. Counter, Illustration reception; 34. Artists' studio, composition; 35. Exhibit, design, construction, Artists' studio, color xerography; 36. Motion picture preview and photographer's office; 37. Editing; 38. Narration booth; 39. Projection booth; 40. Store Room; and 41. Illus. Studio (Graduate Students).

## TECHNICAL ADVANCES

The second era was mainly one of consolidating the status and application of biophotography rather than that of developing new techniques and production methods. However, the increase in the volume of illustration that was entailed triggered the explosion of automated equipment in the third era.

Journal papers and presentations at Annual Meetings in the second era did describe some noteworthy improvements in old techniques. Product announcements gave a preview of innovations in equipment.

### The BPA Journal

Our publication held to the improved format initiated by Flory in 1949. An increase in the use of color illustrations started in 1955—some of it made practical by the Kodak Ektalith Process. A new BPA logotype, designed by Ronald Christopher, first appeared on the cover of the Journal in 1965. It continues to be adopted today.

The task of editing and producing the Journal still taxed the spare time of our editors. So in 1960, the Redactory Service of the American Institute of Biological Sciences was considered for producing the issues. This would have still left the solicitation, selection, and editing of papers to a BPA editor—the major part of the work. Therefore, we decided to forgo the employment of the Service. Earl Weeks, who printed the Journal, gave much personal attention to its production. This lightened the load with respect to that phase of publication. To ease the editorial phase our Editorial Board was enlarged. These measures were helpful. And practical, too, because the Journal undertaking was too small for the economical utilization of an outside redactory organization.

### Journal Editors

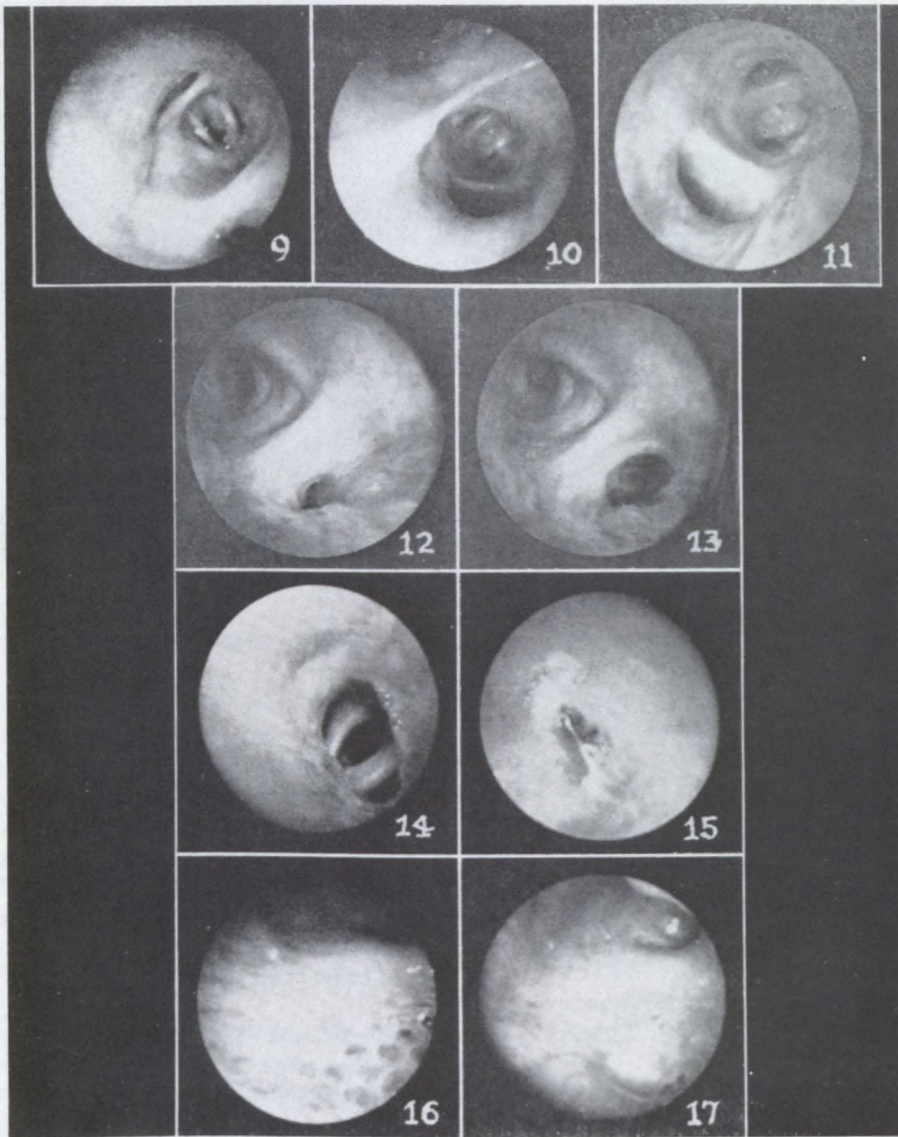
|                          |           |
|--------------------------|-----------|
| Oscar W. Richards, Ph.D. | 1951-1952 |
| Lloyd E. Varden          | 1953-1955 |
| Wisconsin Chapter        | 1956      |
| Leo C. Massopust         | 1956      |
| Lloyd E. Varden          | 1956      |
| H. Lou Gibson            | 1957      |
| Leo C. Massopust         | 1957-1966 |

### Journal Papers

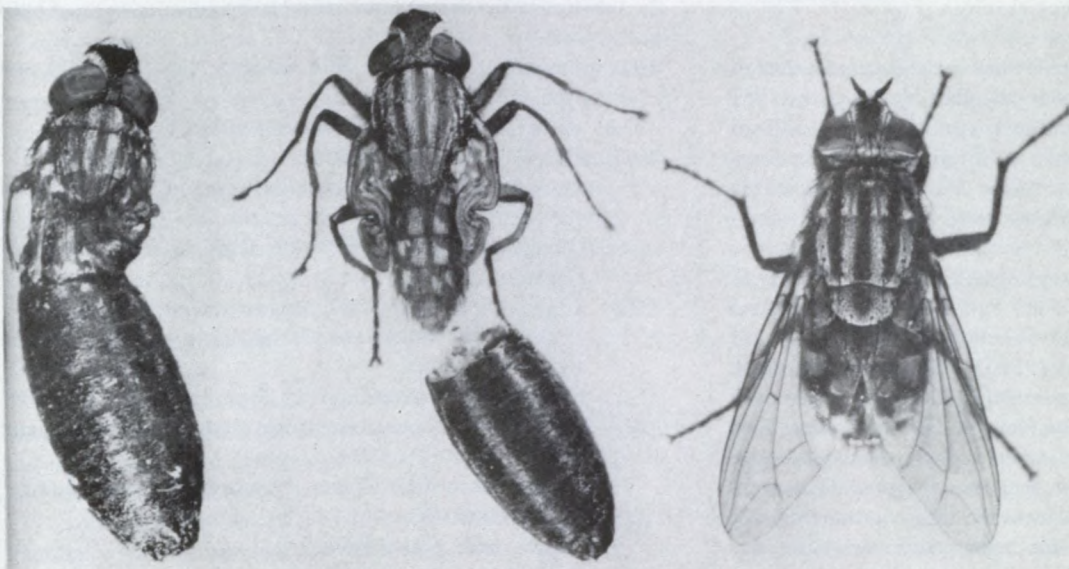
The following list offers some of the publication highlights. New trends can be observed, but mainly the topics indicate the consistent diversity of BPA interests over the years.

- 1951—Oscar W. Richards; producing contour lines in phase photomicrography for tridimensional cytohistology.  
 —H. Lou Gibson; copying radiographs in color.  
 —Machteld E. Sano et al.; cinephotomicrography of tissue cultures.  
 —Arthur L. Smith and Minter J. Westfall, Jr.; descriptive photography of the dragonfly.  
 —H. G. Kobrak, M.D., Ph.D.; a macrographic stroboscopic cine study of the inner ear.

- 1952—Warren H. Green; preparation of prints for publications.  
 —J. D. Brubaker; definitive papers on the optics of endoscopy.  
 1953—Charles E. Engel; photographing footprint tracks.  
 —Julius Weber and Gershon Shapira; exposure evaluation from photometer measurements in photomacrography and photomicrography.  
 —Charles Maresh; infrared photomicrography with an electron image tube.  
 —Lewis W. Koster; of Columbia University College of Physicians and Surgeons, time-lapse cinephotomicrography.  
 1954—Robert F. Smith; polarized light for the photography of unstained radioautographs of plant tissue.  
 —Robert S. Warner, M.D.; circulation of audio-visual seminar kits on post-graduate education in rural areas.  
 1955—Sidney Shapiro; the life and work of Anthony van Leeuwenhoek.  
 —Albert Averbach; forensic photography.  
 1956—Bernard M. Spinell and Roger P. Loveland; flash illumination in photomicrography.  
 —J.-M.D. deMontreynaud et. al.; definitive paper on bronchoscopic photography and cinematography.  
 1957—F. D. Wallace; neuropsychiatric photography and cinematography.  
 1957—Douglas C. Anderson; electronic flash photomacrography of living insects.  
 —Howard E. Tribe and Ralph L. Shelton, Jr.; cinematography of the human larynx.  
 —Symposium Authors; a 104-page compendium, with 8 pages of color illustrations, dealing with the applications and administration of biophotography as an aid to communication in science and education. Extra issues were printed to serve as a "showcase" for distribution to administrators, educators, and heads of biophotographic departments.  
 1958—Arthur Smialowski; clinical photography of the human eye.  
 —Dwin R. Craig; LogEtronics.  
 1960—Stanley Klosevych; phase contrast photomicrography. This was the first in a series of his detailed tutorials that continued well into the third era.  
 —Maurice LeCover and Henry J. Rubin; of the Cedars of Lebanon Hospital, Beverly Hills, sophisticated setup for the precise, high speed, cinematography of the human larynx.  
 1961—George W. Nace of the University of Michigan, Department of Zoology, and John W. Alley; photographing precipitation bands in agar gel plates.  
 1962—Richard P. Herzfeld; automation in bird photography.  
 1963—Eucario López-Ochoterena; biologist, Mexico, electronic flash photomicrography of ciliated protozoa.  
 —Major Stephen P. Dittman; U.S. Army, a medical photographic mission in Southeast Asia.  
 —Don R. Tyson; of the American National Red Cross, starch gel electrophoresis photography.  
 1964—Ross Jackson; of the bio-Graphic Unit, Canada, Agriculture, detection of plant disease symptoms by infrared photography.  
 —W. H. Oldendorf, M.D.; subtraction method for reproducing radiographs.  
 1965—Clifford L. Freehe; dental clinical photography.  
 —Arthur Smialowski and Donald J. Currie, M.D.; photog-

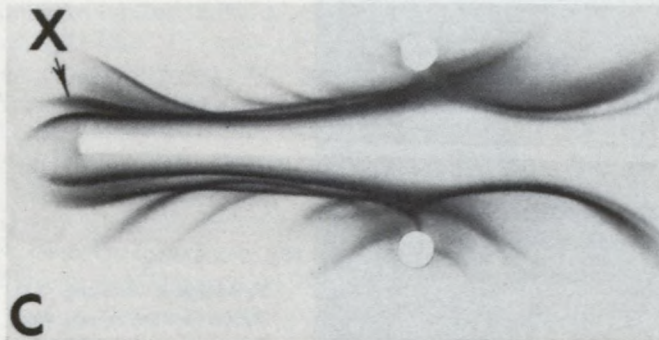
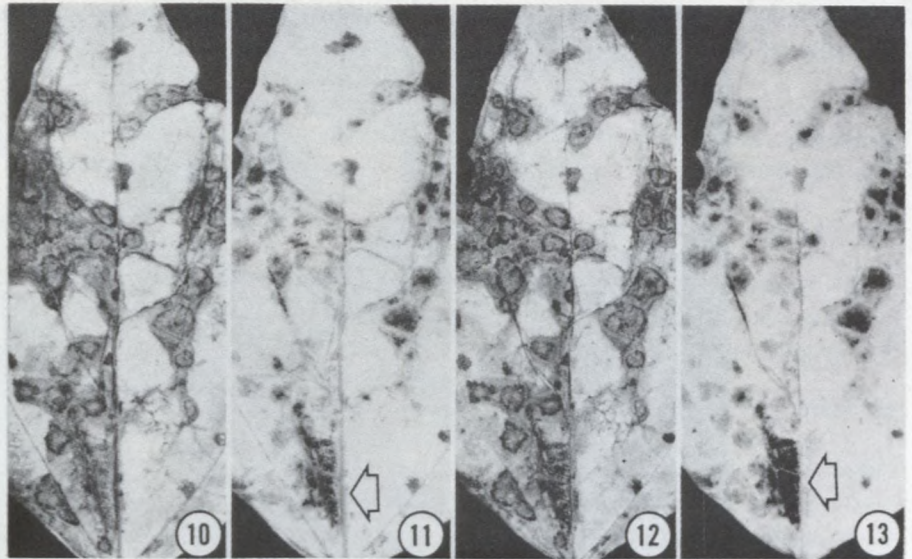


Pathological Bronchi; J-M. Dubois de Montreynaud. Work done at the Centre Régional de Lutte contre le Cancer, Reims.



Parasitic Fly Emerging; Douglas Anderson.

Diseased leaves; Ross Jackson. Leaves of field beans inoculated with *Xanthomonas phaseoli*. 10 and 11, fresh leaves, pan and infrared; 12 and 13, dried leaves, pan and infrared.



Precipitation Lines in Agar; George W. Nace and John W. Alley. A lactate dehydrogenase immunoelectrozymogram of a frog embryo and anti-embryo system.

raphy in the operating room.

- H. Lou Gibson et. al.; infrared color photography, and the photography of infrared luminescence.
- E. Lynn Baldwin; the Polaroid Vectograph process for stereo prints.
- Don Fritts; veterinary photography.

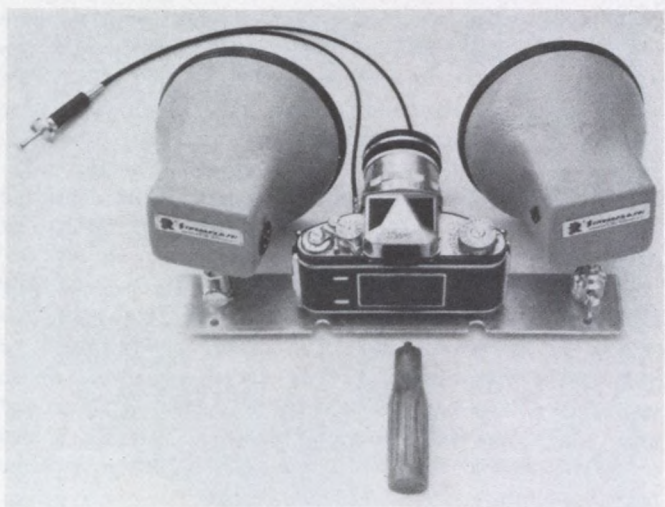
While the results were not published in the Journal, an original experiment by Ralph Creer was described by him at the 1952 Annual Meeting. He showed the similarity of the eye to a camera by placing a piece of film in the plane of the retina of enucleated eyes obtained from the Chicago Stock Yards. A shutter was placed in front of the corena and photographs made with the eyes themselves.

A book to be called the "Encyclopedia of Medical Photography" was envisaged in 1950 by John Fallon, M.D. of the Fallon Clinic in Worcester Massachusetts. Coeditors were to be Leonard Julin and Ferdinand Harding. In 1951 Dr. Fallon died. The BPA planned a series of Fallon Memorial Papers for the Journal based on the material prepared for the book by BPA members. Two chapters had been completed—Albert Levin's contribution on photographic copying and mine on department layouts. These were published in 1956 and 1959, respectively. Other authors did not complete or update their chapters for the purpose, so the project was abandoned.

### New Equipment

Refinements and innovations in equipment emerged in these years. For example, increasing use of electronic flash illumination and refinements in the lighting units were important factors for convenience and quality. The following notes on some of the more significant advances indicate the trend. The years stated were those in which each item was described in the Journal or was shown at an Annual Meeting. They are not necessarily the dates of introduction, but they provide a time frame for improvements that led to some of the equipment in use today.

- 1950—Wilmot Castle Explosion-Proof Light; a stand light for color photography in the operating room.
- 1952—Intraflex Body-Cavity Camera; 16 mm apparatus for delineating details in a range of anatomical orifices.
  - Mighty Midget; electronic flash ring light.
- 1953—Kodak Analyst Projector; stop-motion and other features for kinetic studies.
  - Kodak Ektalith Process; for color reproduction by short press runs.
- 1954—Fenjohn Underwater Still Camera; for 120 or 70 mm film.
- 1955—Kern Colpograph; with electronic flash.
- 1956—Diafix 35 mm Strip Printer.
  - Hasselblad leather extension bellows; this simplified photomacrography with these cameras.
  - Mount-On-Camera Ascorights; new light-weight electronic flash units.
- 1957—Pageant Sound Projector, Magnetic-Optical Model.
  - Praktina FX Radio Control Unit; for operating a camera by remote control.
  - Super Anscochrome Daylight Type; exposure index, 100.
- 1958—Rectablitz; 1½ ounce electronic flash unit, three 1½ volt batteries.
  - Alpha Makro-Kilar, 40mm, f/2.8 Lens; 2 inches to infinity, pre-set diaphragm.
  - LogEtronic Contact Printer.
  - Oscar Fisher Compact Silver Recovery Unit.



Hand-held setup for the ultraviolet-excited visible fluorescence photography of patients; D. A. Gibson.

- 1959—Hershey Hi-Pro Speedlight; showed trend toward compact units.
- 1960—Remiphot; exposure meter for use at microscope eyepiece.
- Olympus Auto-Eye Camera; (for general use) with self-adjusting diaphragm, automatic flash settings, manual override.
  - Angenieux 17/70 Lens; with motor-driven zoom.
- 1962—Portable Cinema Light; with nickel-cadmium battery, illumination to 60 feet, burned 6 minutes, charged in one hour.
- 1963—Nikkorex 35 Zoom Camera; first still camera with built-in zoom.
- 1965—Zeiss Ultraphot II Camera Microscopy; 4 × 5, fully automated combined camera and microscope.
- Bausch and Lomb Light Wire; fibre optic bundle for microscope illumination.

#### Some Technical Notes

In 1959 the Society of Photographic Scientists and Engineers drew attention to an advance that was a forerunner of later methods of analyzing color images. C. J. Hirsch, Vice-President of Hazeltine Research Corporation, announced a method of scanning color negatives that displayed instantaneous color positives by means of modified television circuitry.

In the *Journal* during 1959 (Vol. 27, 151), D. A. Gibson, now of the Sir Charles Tupper Medical Building, Halifax, Nova Scotia, described the work done previously in the University of London, by W. D. Tredinnick, and later by himself, in the close-up, ultraviolet-induced, visible fluorescence photography of patients. He illustrated a hand-held arrangement of camera and electronic flash units that greatly simplified the method and made it practical for routine applications.

In the early sixties, some of our members drew to our attentions ideas that were not published in the *Journal*. Those interested in the techniques may want to check pertinent literature or contact the authors of the experiments.

Gottlieb Schneebeli, of the University of Utah, worked out a photomicrographic method for recording microelectrophoretic bands. Nile Root, then of General Rose Memorial Hospital in



Two BPA innovators cogitate on biomedical photographic research. Alfred Benjamin, of the Orthopaedic Hospital, Los Angeles, found several clinical applications for infrared color photography and liquid crystals. Maurice LeCover, of the Cedars of Lebanon Hospital, Beverly Hills, designed intricate setups for high-speed cinematography.

Denver, improvised a side tube on a microscope so that the pathologist would select and study an area on a slide and the photographer could watch the ground glass at the same time. When a desired field was found, the photographer touched up the focus and made the picture.

At the University of Colorado Medical Center in Denver, William Wheeler worked with Dr. Robert McCannon in making iconographic, concentric, line diagrams of body outlines from serial photographs of developing children, Ring-shadow lighting was used.

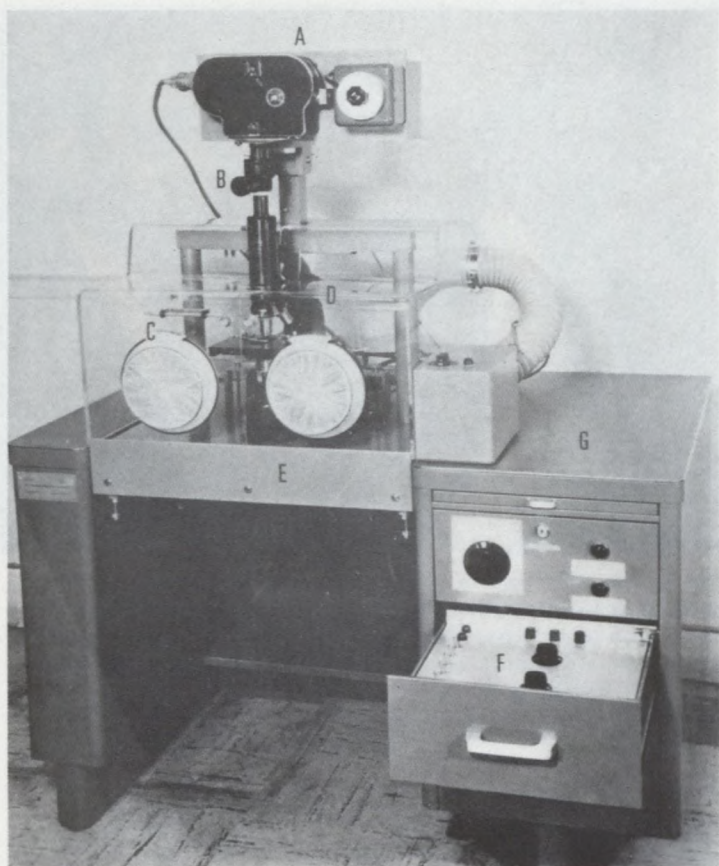
Professor Frank McWhorter of Oregon State University reported a special macroscopic method for making wing prints of insects. Taxonomic details were delineated that were otherwise not discernible.

#### Cinematography

Sophisticated cine techniques, especially for research, continued to be carried out—as evidenced by the representative *Journal* papers listed in the foregoing section. Cinematography was still a significant medium for education. An example of the importance granted the teaching film was the program started in 1960 by Yeshiva University. The project was supported by a grant from the National Science Foundation. Roman Vishniac was assigned to produce 16 mm, sound, color films for a “Living Biology” series. Forty films at two levels were planned; for high school and for college students.

F. D. Wallace, at the VA Hospital in Lexington, Kentucky, produced about a million feet of 16 mm cinematography during the second era. Using unobtrusive setups he mingled with the patients and recorded the behavior of neuropsychiatric subjects when they were not conscious of any surveillance. Long-term documentation of the severity of disturbances and of responses to treatment were thereby possible. (See the key *Journal* papers listed for 1957.)

Television study was adopted later on. However, by then, differences in institutionalization and in facilities for therapy posed



A technique specially suited to cinematography, which burgeoned in the second era, is the time-lapse recording of the revealing processes manifested by tissue and other cultures. The setup shown here was adopted by Herbert A. Fischler, using Sage equipment.

difficulties for a recording continuum over extended periods. Hence, Wallace's backlog of films provided invaluable unintrusive research presentations and they were often combined with television demonstrations.

## TELEVISION

It might be said that television communication was received by biophotographers with mixed emulsions. Silver halide or ferrous oxide; which would become supreme? This quandry was caused in part by the exuberance of many of the early proponents of television. In their thinking, the new art was going to oust photography almost entirely as a teaching medium, and leave only journal and book illustration and the preparation of some television visuals for photographers. Media experts drew attention to the immediacy and "live" aspects of televised surgical operations, and other medical procedures, coupled with the two-way FM communication between operator and viewer. It is true that cinebiomedical presentations had become somewhat stilted and over-polished by editing. Yet many of the effective phases of television could, and did, become adopted by film producers.

In the early days, the sensitivity of image-orthicon pickups made television a "faster" recording method and the tape did not have to be processed. But improved films, lenses, and light sources were soon to come and they narrowed the disparity. Coupled with this was the higher resolution and color fidelity of films. There were other comparisons dominating discussions then. A motion picture

could be assembled from historic footage or from scenes too rare to be readily repeated. Cine equipment was less expensive than video apparatus, and maintenance less costly. Effective live television often required two cameramen and a producer to watch a monitor. Cine productions were geared to the use of one camera at a time. Only one person was required when the need for increased output arose. Cine films were most suited for such projects as time lapse and high-speed research, as well as for recording experiments and documenting the results.

There was some indication that television proponents believed they should direct all illustration services. Yet, photographic directors had had more experience in guiding photographers and artists in the preparation of effective educational material. When television facilities began to be installed, the photographers and artists were indispensable. They had the skill and knowledge needed to prepare television visuals of suitable quality for clarity on the television screen.

The aspect ratio of charts had to be considered. Photographs had to be of lower contrast than those for direct viewing. They had to be made on paper with a matte surface. Slides had to be made with the area of interest fitted to tube formats rather than to slide projector formats.

It was not until our third era that the particular capabilities of both media were fully melded. Photographers learned about the applicational values of television. Television engineers learned the attributes of photography. Improvements in the methods of both media made photography more flexible and television more practical. Good teamwork integrated television into illustration services as a valuable adjunct. In general, photographic communicators had the more suitable background for directing the activities of these services.

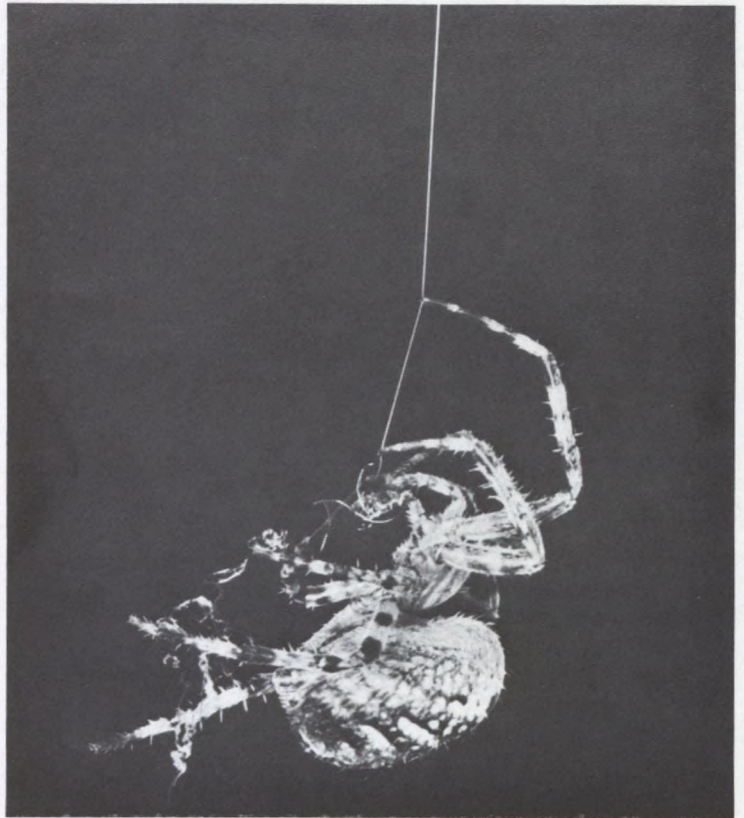
Television stimulated photographers with a challenge, and photographers were able to bring some fresh viewpoints to television operations. For example, to offset the need for three people with a two-camera television setup, Joseph T. Lappan, Director, Audio-Visual Department, Mercy Hospital, Pittsburgh, described in a 1963 Journal paper a procedure whereby one engineer could handle the production. In the third era, video cameras became relatively inexpensive, so television production methods became more practical.

### A Slow Start

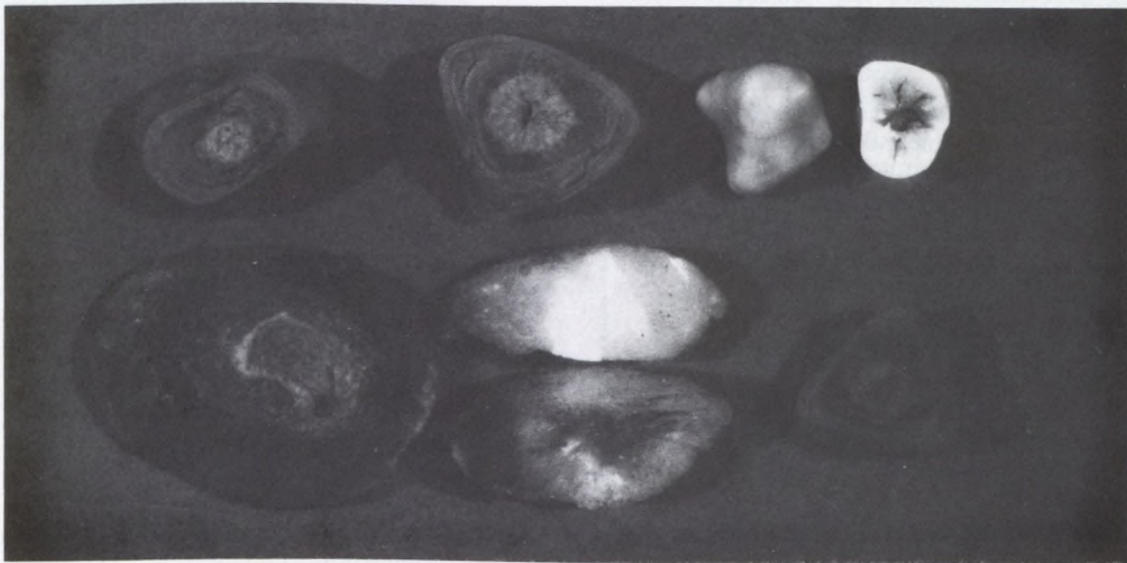
Apart from the early "conflict" between photography and television, other factors deterred an immediate and widespread adoption of television. It took some time for educators to realize the potentiality of the new tool.

The showing of television programs to large audiences was inconvenient compared with the simplicity of projecting films and slides. Large-screen eidophor projectors were cumbersome and complex, and the image was dim. The system gave way to a procedure of locating several receivers in meeting halls. And while large institutions were able to install consoles in class and seminar rooms—especially in new buildings with built-in cabling for the purpose—smaller institutions were not geared for such presentations.

Impetus was given by David S. Ruhe, M.D., who joined the University of Kansas Medical Center in 1954 as director of audio-visual education. As a keen supporter of the cinematographic medium, he was in a good position to make a transition to television. In fact, the latter became his major interest for a while. Nevertheless, his new department was called the Section on Illustration,



Muscular anomaly at the cubital angle. *Araneus sericatus* climbing her drag line. The forte of photography is rendering subtle gradations of tone and delineating fine details.



Blue-green-excited infrared luminescence of bilirubin in human gall stones. Television cameras can record faint subjects, but long exposure times with infrared films are needed for emissions as dim as this. Scanning electronic systems, however, can depict infrared details in a wavelength beyond the actinic range.



Photography, and Television. He soon appreciated that all media had a single aim. His unit was renamed Medical Communications in 1962.

At the 1956 Annual Meeting in Rochester, N.Y., an evening program was directed specifically toward physicians, dentists, and administrators, who were invited as guests. (Professional duties kept them away during the day.) In addition to showing the work of biophotographers, the session included a demonstration and appraisal of television as a biomedical medium for communication. First Lt. Stephen Dittmann and John MacKenzie of Smith, Kline, and French Laboratories, conducted the presentation.

In 1958, Dittmann (then Captain, and Major at the end of his career) moderated a "Large Screen Live Color TV Program" when we met in Washington for the Annual Meeting. The demonstration was made in the Sternberg Auditorium of the Walter Reed Army Institute.

Probably the debut of medical television as a tool occurred in 1947 when Johns Hopkins University televised a surgical operation to its staff. The reception was in black and white. The next event was soon to follow and was described by Richard Matthias in a Journal paper in 1961. He reported that the first complete program of medical significance was presented in color by Smith, Kline, and French Laboratories at the 1949 American Medical Association Convention in Atlantic City.

Both presentations were seen via closed-circuit transmission. Most of the educational programs to follow involved closed-circuit systems. However, the use of standard broadcasting facilities were not unexplored. For example, within the Institute for Advancement of Medical Communication, the Section on Medical Television was formed in 1959. The group initiated an open-circuit project in 1960. Four-hour videotape programs were recorded for distribution and transmission by the National Educational Television and Radio Center (NET) and affiliated stations. Kinescope copies brought 16 mm film into the project—both for supplementary viewing and for demonstrating the potential values of such methods. In addition to professional refresher courses, some of the programs were aimed at the public. These dealt with self-help and home-care topics for patients and their families.

Those who are familiar with the efficient incorporation of television facilities into illustration service that came in the third era will be interested in a 1965 NEWS letter by Clifford Freeche. His comments show that progress does not just bloom placidly like a rose.

"I have just attended the Ann Arbor meeting of the Council on Medical Television. It again was brought to my attention what small concern biological photographers attach to this large visual aid field. It is my opinion that the biophotographer should be the person in his institution most concerned with operating and coordinating Health Sciences Television. The biophotographer has the knowledge to coordinate and advise the faculty and researcher on the production and visual aid application of closed circuit television. As biophotographers we consider ourselves communication specialists. If we intend to keep moving ahead in this field we are *long overdue*, as a group, in becoming active in the production of closed circuit television presentations. The communication specialist biophotographer who today does not associate and educate himself to encompass the knowledge and skills required to function in health sciences television is going to find that as electronic photography comes into greater daily usage he has been left far behind.

"I would suggest that the certification committee require some knowledge of closed circuit television as part of its requirement for certification. If not for the senior biological, then by all means for the master communication specialist.

"In general I have been appalled at the quality and lack of imagination shown in the use of closed circuit television by many health science institutions. In many instances the medium is being operated and coordinated by people who have little or no knowledge of production techniques. Where and what is the matter with our biophotographers who have production knowledge and could so ably assist their faculty and institutions in this program?

"Television is electronic photography. A photographer does not have to be an electronic specialist or know how to repair the equipment to coordinate closed circuit television presentations and be of assistance as the audio visual or communication specialist coordinating and working with educators to produce better television presentations."

In this chapter of our history the hammers and anvils that wrought the BPA of the second era have been described. The structure could now carry the responsibilities thrust upon our Association in the third era. Strength was acquired from and still draws upon the aspirations of the membership. I have tried to show that BPA is not a Delphic authority guiding destinies, but rather a group of men and women capable of molding its own destiny.

## THE ERA OF MATURATION 1965-1980

"It became clear that the true meaning of Certification would depend upon the degree of responsible professionalism that BPA, as the certifying body, could demonstrate and maintain; and that the value of any certificate of competence is only as high as the regard held of the certifying body and the quality of the program."

So stated Lardner Coffey in his presidential report of 1965. The way in which BPA met this challenge for maturation comprises the history of our third era. We were obligated not only to advance the technical proficiency and status of the Association and its members, but also to contribute what we could toward the progress of biomedical communication.

In face of the need for imparting the plethora of information in all health-science and biological disciplines, an interdependence arose between communication media and delivery systems—photography, art, television, lecturing, study facilities, and publication. A demand for symbiosis in illustration services was engendered.

The foundation for building upon these aims had been the establishment of many new chapters in the second era. Biophotographers in all regions of the country realized what BPA might accomplish. And BPA knew that it would require a large membership base to carry on its programs.

Activities assumed three phases: **Association** efforts were those exerted by the Board and by United States, Canadian, and some overseas committees. **Regional** projects were undertaken by one or more chapters and members in designated, geographical, chapter areas. **Local** contributions came from single chapters. Educational and technical projects were mounted at all levels. Together they resulted in impressive advances.

Since progress was spread over 15 years, members who contributed throughout the period may not have noted the woods for the trees. It is the aim of this part of the account of our history to back off for a better view of the forest.

### ADMINISTRATION

All members have had a part in advancing BPA aims. As always though, history has to be focused on the more prominent ones—officers and those chairing committees, in particular. It would be too cumbersome to show the Directors. However, they have been listed in each issue of the Journal. Again, they have all served in other capacities and notes on their activities run through the text.

A representative committee structure is given in the account of the second era. In the third period, many committee functions were transferred to the House of Delegates. So it is interesting to compare committees for 1980 with those of 1957. Also, this present structure provides a launching pad for the next 50 years.

### BPA OFFICERS—1966 to 1980

| Presidents                           | Years     |
|--------------------------------------|-----------|
| Clifford L. Freehe                   | 1966-1967 |
| Howard E. Tribe                      | 1968-1969 |
| Stanley Klosevych                    | 1970-1971 |
| Donald H. Fritts                     | 1972-1973 |
| E. Lynn Baldwin                      | 1974-1975 |
| Leon J. LeBeau                       | 1976-1977 |
| H. Paul Newman                       | 1978-1979 |
| Will E. Renner                       | 1980-1981 |
| <b>Vice-President</b>                |           |
| Lawrence R. Reynolds                 | 1980-1981 |
| <b>Other Officers</b>                |           |
| <i>Secretary-Treasurer</i>           |           |
| Richard C. Matthias                  | 1966-1969 |
| Stanley J. McComb                    | 1970-1973 |
| Sam A. Agnello                       | 1978-1979 |
| Rose Marie Spitaleri                 | 1979-     |
| <i>Secretary</i>                     |           |
| Barbara Jacobs                       | 1966      |
| <i>Executive Secretary</i>           |           |
| Ronald M. Christopher                | 1967-1972 |
| <i>Executive Secretary-Treasurer</i> |           |
| Stanley J. McComb                    | 1973-1977 |
| <i>Executive Director</i>            |           |
| Larry Opprieht                       | 1978      |
| Sam Agnello                          | 1979-     |



The Presidency of Clifford Freehe started the third era; we left it in the good hands of Will E. Renner.

When matters went smoothly there was a tendency to take BPA for granted. Prodding the resultant complacency has been a regular function of our presidents. When contingencies arose there were always willing workers who emerged. They have deserved the recognition and support of their colleagues and associates.

#### Gubernatorial Actions

Some of the administrative events and decisions that shaped the third era ought to be noted. Mainly they revolved around ways and means to place BPA on a sound financial footing. The approach was to retain old members and attract new ones through services, education, publication, and prestige. Dues, subscriptions, donations, and interest receipts had to be allocated judiciously.

In 1966 an "image-building" fund was started upon receipt of \$2500 from an anonymous donor. The amount was to be matched by BPA. Other gifts and bequests followed. In 1971 all endowments were gathered into a single, interest-bearing fund. Margaret Cumberly, of the Edward S. Harkness, Eye Institute, Columbia University, became head of the committee for receiving and administering the money. Donors were allowed to designate the BPA program they wished to support.

The image-building aspect was allied to various phases of activity—press releases and news events at meetings—brochures for attracting new members—services to other groups. Specific duties of a public-relations nature were assigned to a renamed "Communications" Committee in 1975. Robert Ford, of the Children's Hospital, Buffalo, was named chairman. A student of John Vetter's Paul Miller, of the VA Hospital, Miami, succeeded him in 1977. Debi Stambaugh, of the Veterinary College, Iowa State University,

followed in 1978. Miller arranged to exhibit trade magazines concerned with biomedical affairs at our Annual Meetings. In return, the journals included editorial and feature space for building the BPA image. As described further on, this factor became an important one.

The matter of grants was entertained again in 1976. Ralph Glazier, of the Plum Island Animal Disease Center, was asked by the Board of Governors to reevaluate BPA's status with respect to such funding and to find possible projects that would be qualified for aid, but no avenues opened up.

Financial help for students was provided through loans from an Educational Loan Fund. David Lubin was the administrator. The first loan was made in 1971 for help in attending a BPA workshop course. In 1973 \$750 (a useful sum then) was granted a student at the Rochester Institute of Technology. Several other students have been helped over the years. The fund was augmented by chapter and member donations, Board allocations, and sometimes from part of the surpluses gained from Annual Meetings.

In 1976 Stanley McComb and Leon LeBeau, of the University of Illinois Medical Center, reorganized the administration of the fund, with the cooperation of Edward R. Warner, of the Southern Illinois University School of Medicine, who was BPA's Chairman of the Student Affairs Committee. Nicholas Graver was made administrator. In 1977 Fred Hissong, of the University of Missouri, was chairman and reorganized and expanded the program. By that time the sum had increased sufficiently to permit making \$5,000 available in any one year, with a maximum of \$1,000 for a student. The limit was raised to \$2,000 in 1977. In 1979 loans to the extent of \$4,850 were outstanding; repayment procedures were studied and

## BPA BOARD OF GOVERNORS—1981

### Standing Committees

#### Budget and Finance

David W. Levy

#### Chapters

James Beamer  
James Kendrick

#### Communications

Debi Stambaugh

#### Conferences

Jerome Glickman

#### Commercial Exhibitions

#### Professional Exhibitions

Eugene E. McDermott

#### Traveling Print Salon

Vincent Vaccarelli

#### Display Coordination

Peter Ide

#### Scientific Program

Marilee Caliendo

#### Development

James Todesco

#### Federation Board Representatives

E. Lynn Baldwin

Will E. Renner

#### Alternates

Antol H. Herskovitz

H. Paul Newman

#### Historian

Albert Levin

#### Honors

H. Paul Newman

#### Fellowship Award

William H. deVeer

#### Louis Schmidt Award

Donald Fritts

#### Ralph Creer Service Award

Will E. Renner

#### Committee on Professional Education

Martin L. Scott

#### 11th Annual Biophotography Workshop

Martin L. Scott

Bruce Grant

#### Autotutorial Programs

William H. deVeer

#### Professional Interest Sections

Mike Lorfing

#### Motion Media

Michael Lorfing

#### Ophthalmic Photography

Terry W. George

Barrett P. Walker

#### Computers in Biophotography

#### Director of Publications

Thomas P. Hurtgen

#### Journal of Biological Photography Editor

Thomas P. Hurtgen

#### BPA News Editor

Richard H. Ray

Nancy Ray

#### BPA History

H. Lou Gibson

#### Standard Practices

Carol Asimow

#### Student Affairs

Merrie Mendenhall

#### Sustaining Membership

David C. Willoughby

### Ad-Hoc Committees

#### Biophotography Classical Portfolio

Hans S. Dommasch

#### Biophotography Profession Survey

David E. Gray

#### Constitution and By-Laws Revision

Lewis W. Koster

#### Goals and Objectives

Wayne C. Williams

formalized.

As a result of the investigations and recommendations of Graver, full-time students were also assisted by a special membership classification established in 1971. This category was extended from an initial two-year period to four years in 1974; then in 1980, back to two years. Initially such students received the Journal but paid only half the regular dues.

Routine expenses for running an association need not be elaborated here. Yet some special factors ought to be noted. The status of members retired from biophotography was redefined in 1966. They could apply for "Emeritus" status. They were required to have been active members for 20 or more years. Their rights and privileges remained the same, but they were not required to pay dues nor registration fees at Annual Meetings.

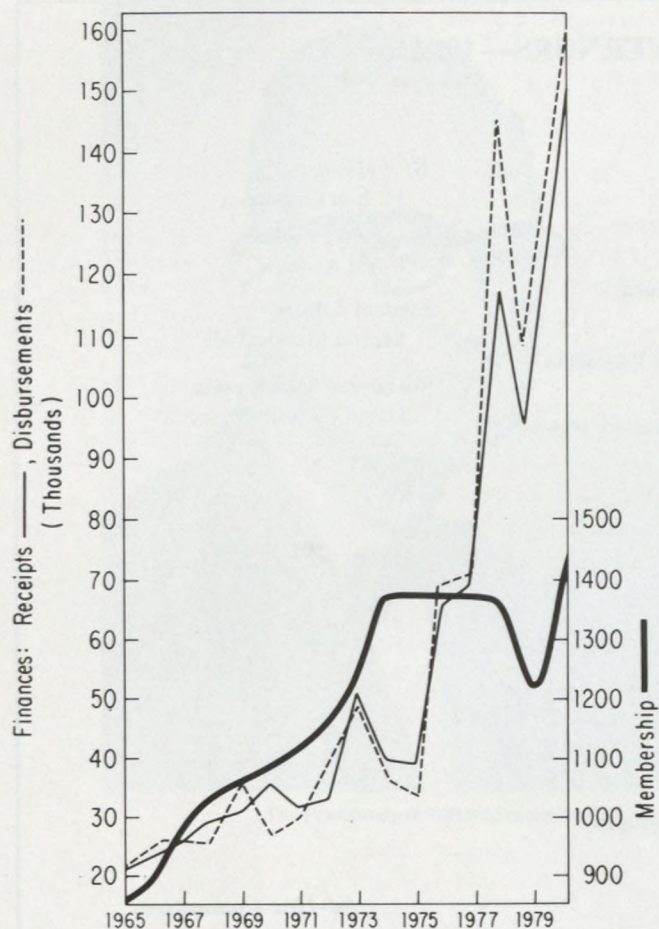
Association finances were affected by chapter regulations. BPA members in the geographically defined zones were assigned to the respective chapters. A portion of the dues from each Association member (\$5 in 1979) was rebated to the Chapter concerned. This was done to stimulate an increase in the proportion of Asso-

ciation members in the chapters. Non-members could join the chapters and just pay local dues. But chapter officers had to be full Association members.

Further, to attract full-fledged memberships, BPA also encouraged the mounting of important regional and local programs. Chapters could call on the Association for assistance with ventures otherwise not feasible. The Board could elect to support without return certain projects to an extent beyond the allocated amount. Some of the now self-supporting regional and local educational sessions were examples.

Start-up money was given to chapters sponsoring Annual Meetings. A loss from such an event was borne by the Association. But a gain after expenses was conveyed to the BPA Secretary-Treasurer. The money was usually kept for starting subsequent meetings. Sometimes, when a surplus accrued, part was added to special funds. For example, the Southwest Chapter made \$2,000 from the 1970 meeting in Houston. Of this, \$500 was put into the Educational Loan Fund.

In 1976 extra attention was given the chapters by E. Lynn



Baldwin's Chapter Development Committee. Funds were provided for special chapter activities, with special help for organizationally weak chapters. Thereby outside experts could be brought to local meetings. BPA officers were often able to attend and pass along encouragement and technical information. This was particularly true of Leon LeBeau—the most peripatetic of our presidents. During his administration, and after, he appeared and/or lectured at most of our major meetings in the U.S.A. and in Canada.

An important function of Baldwin's committee was to persuade chapter members to become paying Association members. This was done by demonstrating the ability of BPA to help them, and bi-photography in general, were sufficient funds available. During Baldwin's term, the legal mind of Yamamoto was focused on re-writing the Constitution to accommodate the many changes that had gradually made our organization more complex in structure.

In 1977 retaining the services of a management company was again explored, because the workload for the Executive Secretary and Editors had become heavy. Keeping membership lists up-to-date, mailing BPA notices and publications, handling ballots, and administering the treasury entailed much detailed and tedious effort. The Marvin Lurie Management Associates, with Larry Opprecht acting as liaison, was engaged at the beginning of 1978. As described in the account of our second era, again BPA affairs proved too specialized and limited to make the arrangement economical. Also, a misunderstanding regarding membership listing arose, so members who had dropped out were still carried on the rolls. They received the Journal without paying dues. Hence, the contract was terminated at the end of 1978.

Sam Agnello, then of Duke University, was elected Secretary-Treasurer to step into the breach. Agnello was then appointed Executive Director during 1979 by Paul Newman. With a keen understanding of our requisites, and nearing retirement, Sam was able to arrange his own affairs and those of BPA so as to remove much of the need for extra outside help.

Nevertheless, some of the routine functions had become too extensive and time-consuming for BPA officers. So instead of relying on a single commercial concern, or over-burdening the officers, some of the operations were allotted to suitable agencies. The Mack Printing Company, printers of our Journal, were in a good position—because of their computer facility—to handle membership lists, mailing labels, and billing. BPA's financial accountancy was contracted with a firm of accountants.

Other BPA responsibilities were divided in order to decrease the load in a given office. In 1979 Harald Richter, of Geisinger Medical Center, Danville, PA, succeeded Foster Moyer, of the Reading Hospital and Medical Center, as chairman of the Admissions Committee. For duties concerning BPA central office functions, the Secretary-Treasurer looked after correspondence, received dues, and was authorized to issue all disbursement vouchers.

Several long-term members who have served BPA over the years have reached, or are approaching, professional retirement. They are finding that continued or renewed service to our Association offers them a rewarding means for leisurely, time-passing activity. Thereby they can lighten the load of younger members, whose professional duties limit the amount of time they can devote to BPA—time which is indispensable, but which, divided now among diverse committees, ought not become burdensome.

Members donated their activities to BPA. However those who regularly devoted a large amount of personal time, such as the Executive Director and the Director of Publications, were given contracts that covered expenses and partially recompensed the time spent. Such arrangements were less costly than professional management systems, and they gave BPA the satisfaction and surety of running its own affairs.

During all the deliberations of the Board of Governors and of the House of Delegates, BPA members were welcomed as observers. And, of course, the membership at large was made aware of the decisions through discussions at Annual Meetings and by means of reports in the BPA NEWS.

### The Need for Growth

The fact that BPA continued to grow throughout its history has not been due automatically to natural causes. Progress came because of the awareness and actions of the Board in meeting the needs of its members and of the field in general. The concern permeated the third era as well as previous ones.

The graph herewith plots the relationship between membership and finances. In spite of careful budgeting, there has been a swing back and forth between credit and debit accounting. Surpluses in some years have carried the deficits in others. The balance in the seventies, however, had to be made up from the interest on bank deposits and from investments—a precarious situation when it persists. For 1978 and on, budgets for the Annual Meetings, for workshops, and for the Board of Registry were included with the main BPA budget. This accounts for the rising financial chart lines for those years.

Ironically, the chart shows that the trend of membership rose during debit years and slowed up during the austere credit years.



Sam Agnello talks to the Board of Governors during the 1978 Interim Meeting in Kansas City.

This suggests that when BPA spent money to expand services, more members came in. The problem has been to avoid deficits without losing more members than the number of new members entering. Fortunately, the long-term balance has been encouraging.

As a consequence, the general rise in membership (shown by the upward slope of the curve) doomed the Board to the Sisyphean task of keeping the fiscal rock from rolling back down to frustrating levels.

Raising dues to offset costs has been only a partial solution. Whenever this was done, a drop of 10 to 15 percent in membership figures occurred. The rising growth curve did maintain a hopeful upward trend, but not steadily. Yet an increase in membership usually entailed more expenses. (The 1980 budget called for \$159,725.) Means to serve more members at a lower pro-rata cost have been a perennial burden. With rising dues, the ratios of total receipts to the number of members generally increased—29 (i.e. \$29 income per member) in 1969, 42 in 1973, 28 in 1975, and 46 in 1977. The ratios of disbursements to the number of members were: 33 (\$33 spent on each member) in 1969, 42 in 1973, 23 in 1975, and 47 in 1977. These years were approximately break-even years. The figures show that there was a general rise in the pro-rata cost. It should be noted that the total receipts were made up of income from investments as well as from dues.

Examples of the level of dues were as follows: Active, \$30.00; Affiliate, \$27.50; Student, \$10.00, in 1973. Six years later they had to be raised to \$50.00; \$47.50; and \$25.00, respectively.

One of the big increases in actual expense has been the cost of printing the Journal. Yet relatively this expenditure did not rise unduly. In our first years, the Journal absorbed 67 percent of the dues (dues, not total income). Around the beginning of the third era the proportion had dropped to 50 percent. Costs began to climb, so in 1977 the figure rose to 65 percent, but went back down to 50 percent in 1979.

Printing a greater number of Journals would cost little compared with the charges entailed in preparing it for the presses. So

an expanded readership would be of great help to boost BPA receipts. Chapter members who received the benefits of the Journal by joining the parent organization aided themselves and BPA.

Then there was the solution sought since the beginning of our Association—expand the membership base by attracting a broader category of biophotographers. No other organization offered the background and facilities for advancing their technical knowledge and status. This call was echoed in a 1976 editorial in the BPA NEWS (No. 76) by Leon LeBeau.

“The Biological Photographic Association is almost 50 years old. One could say we must be a pretty stable group since we are as strong and as active as ever. But how stable can we be if our membership rolls remain constant while the profession has grown both in numbers and in diversity of application? This year it is estimated 84,000 students are involved in some aspect of formal education in photography. Thousands more are in apprenticeship and other forms of on-the-job training. How many of these will seek employment in biomedical communications?”

“The fact of the matter is that photography is practiced at various levels of sophistication in many departments at almost every scientific and medical installation. This means that more than 30,000 potential members are either unaware of or not interested in the Biological Photographic Association. They are without professional identification or representation. It means that BPA can only be recognized by the professional and scientific community in proportion to its small size. It means that the service BPA renders its members is less than it could be with larger membership rolls. It means that, in the eyes of our administrators and directors, our biophotography education and certification program may not be achieving their full potential.”

Need more be said! But more important, be done. In 1980 Renner convened the President's Task Force on Goals prior to the Annual Meeting to work out plans for steering BPA's course for the oncoming years.



Paul Newman discusses reorganization of BPA's executive functions.



President Donald Fritts is greeted by John Trauger, and Nile Root looks on, as snow threatens on the RIT Campus.

## Federation

A means for encompassing other groups concerned with medical illustration was investigated by BPA in 1969 by a committee headed by Stephen Dittmann. It was proposed that we form a federation with the Association of Medical Illustrators (AMI) and the Health Sciences Communications Association (HeSCA, founded in 1959, formerly Council on Medical Television). The feasibility of such a merger has been explored through holding tri-centennial joint meetings. This was started in 1970 and continued to 1979 as expansions of our Annual Meetings. Such affairs have proved to have been valuable and enlightening to the three groups.

Each organization shared the task of providing papers and circularizing their members. The meetings were brought to the attention of HeSCA and to the National Audio-Visual Association. Their members often attended and some BPA members were on their rolls.

The fiscal and other problems of the three groups for the tentative federation were not unique. All relatively small societies of the period experienced the same difficulties in improving the advancement and services for their members. Mergers often took place. Quasi federations, like the American Institute of Biological Sciences (AIBS), embraced many specialized groups and served a large of individuals with a journal and some managerial and editorial aid. In the fifties, BPA became an adherent member of AIBS, with the view to let the people of such societies know that a bi-photographic association existed. We thought we might be able to gain science members wanting help with photographic information. However, the expense of such affiliation proved too great to justify continuance. We attracted very few such members, largely because the AIBS was mainly concerned with the scientific aspects, academic phases, and administrative problems of their disciplines and groups. After prolonged evaluation we resigned in 1967.

Nevertheless joining the less complex, three-group, federation being considered might have offered some advantages to BPA,

would the creation of an aggregation large enough to be viable and small enough to be manageable have been possible.

In 1971 tentative "Articles of Federation" were drawn up for study. Many theoretical benefits were outlined, such as the creation of a broader base for expense sharing, a federated publication for efficient interchange of information, and solidarity of professional action.

One valid objection by BPA members arose immediately. The articles called for equal representation from each, rather than representation based on membership rolls. This could have been modified, but some almost insurmountable obstacles of a practical nature also emerged.

The major concern was the autonomy of the three groups. A certain amount of individuality existed. BPA in particular had long been established as the leading exponent of biophotography. A name change to "Biological Communications Association" was voted down in 1974. Our name and identity could well have been lost in a federation. The medical artists worked in a distinct medium. And the thrust of HeSCA was communication rather than illustration. Yet all worked for the same end—*pro bono publico*. So a federation could have worked out a certain degree of autonomy. Yet organizational snags became evident.

There was the matter of engaging the services of a professional management firm for the administrative work of the three groups. The experience of BPA had not been too happy in this respect. Nevertheless, some form of service would have been needed to correlate the affairs of the larger aggregation. Had a federation been consummated, BPA would have had to foot  $\frac{2}{3}$  of the expenses, because the federation would have comprised that proportion of our members. BPA dues would have to have been raised without commensurable benefits. For example, joint meetings did draw a good number of commercial exhibits. This helped to defray meeting expenses. However, any meeting surpluses were negligible for the general financing of a federation.

BPA members were interested in being knowledgeable regarding graphics and communication methods. They had already been engaged in programs to increase their proficiency in these phases.

It was questionable whether HeSCA and AMI would have been content in a group whose efforts would have logically been  $\frac{2}{3}$  photographically oriented. BPA and AMI members are mainly concerned with the production of appropriate photographic, graphic, and electronic items for carrying information to natural science and medicine. While the HeSCA group has some interest in the methods of production, its major involvement is that of considering effective program systems, evaluation, and efficient hardware for distributing medical educational items. Each phase of communication requires full-time efforts, albeit with a cross-recognition of what to do, rather than with a replete collective knowledge of how to do it.

The nature of a combined journal was considered. The name of our Journal was well established, and would have got lost in any radical change. Its papers were prestigious enough to be listed in professional indices. Without a name change to designate a merger it could have carried regular sections open to AMI and HeSCA. But this would have partially submerged the identities of those organizations.

The Journal would have had to be enlarged, with the likelihood of the increased make-up costs offsetting the printing gains from a wider circulation. Also, a federated subscription list would still not be long enough to draw adequate income from possible advertising. It was once proposed that a separate federation journal be issued, leaving our Journal unchanged. This was not deemed



Past President Lynn Baldwin and President Leon LeBeau present the 1976 Louis Schmidt Award to Charlie Hodge.

practical, because BPA members could not afford to support one journal and contribute to another. Such a federated publication would have syphoned off many BPA papers.

Another aspect of such a merger was that the federation would have involved predominately the health sciences. It would not have been attractive to many photographers in the natural sciences. BPA might have lost members and not have recouped new ones.

We have worked toward serving all biophotographers. Members could be gained by showing non-medical photographers that we had done so, and by continuing to do so. To have become relatively more medical or more diverse in bearing was one of the weighty decisions related to federation.

At the time of writing, reaping the benefits of widely spaced, periodic, joint meetings with such groups seems to be the most satisfactory course to take for all concerned. (Such ventures are described further on.) In 1979, HeSCA voted to withdraw from our co-sponsored meetings.

In that year the BPA Board of Governors decided to postpone indefinitely the matter of this federation. Nevertheless the need for cooperation among groups involved in disseminating biomedical information was not overlooked. So Lewis Koster, of the VA Hospital in Tucson, AZ, and George Lynch, of the Bowman Gray School of Medicine, were given the assignment of exploring the feasibility of establishing or supporting a Council of Biocommunication Societies. The Southwest Chapter conducted some informal federated meetings.

It is interesting to note that in Great Britain the Institute of Medical and Biological Illustration (IMBI) successfully meets as a combined group of photographers, artists, and educators. Part of the success of such a liaison can be explained on the basis of the relatively smaller number of institutions involved and the shorter travel distances entailed.

The concept of BPA federation had early seemed remote. Hence, it had not been seriously relied upon to constitute the main source of new members. In 1976 Leon LeBeau appointed Thomas Uithoven Chairman of the Membership Committee. In 1977 Paul Newman, of the VA Medical Media Division in Washington, D.C., reappointed Uithoven, with the charge to mount an "each-member-get-a-member" campaign. Also, through internal publicity, resigned members were persuaded to reinstate themselves. Since

the rolls rose to over 1,300 in 1978, their efforts bore fruit. However, a raise in dues in 1979 caused a falloff, which showed recovery in 1980. Means were also to be explored for attracting new members from outside the organization as well as within.

Gubernatorial action, of course, involves the routine matters of running the Association. These included implementing some small changes in the Constitution and By-Laws to meet current circumstances. Institutional membership was proposed, which would allow a non-profit organization to nominate, for individuals, memberships paid by the institution. Also, in 1980, an incentive program was introduced to encourage recruitment. Members who sponsored newcomers were given rebates from their own dues—\$5, \$2.50, and \$25 for new active, student, and sustaining memberships respectively. The maximum refund per person was not to exceed 1980 dues. The officers sent personal letters to delinquent members; reinstatements did not come under the rebate plan.

### Services

In addition to the slide-tape and circulating print programs already established, some new services of this nature were introduced. In 1975 two video tapes dealing with biological subjects were made available. These were recorded with Leon LeBeau as the lecturer. An audio tape was later recorded during the dynamic keynote address of Richard Bryne, Ph.D., at the 1976 Annual Meeting. He philosophized on the satisfaction of successful biophotographic endeavors and on the lessons to be learned from failures—which could thereby be transformed into successes.

Two new slide-tape programs were added in 1978: "This is BPA," by Ronald Irvine, of Queens University, Kingston, Ontario, outlining our aims, activities, and certification program; and "Gadgets," by Kenneth Michaels, of the University of Arkansas Medical Center, describing inexpensive items that simplify photographic routines. In 1979 slide-tape programs by Tom Hurtgen entitled "Making Slides of Radiographs" and "Making Prints of Radiographs" were added to the collection. In 1980 two RIT students, Rick Sommer and Larry Bruder, prepared programs on human anatomy and photomacrography, respectively. BPA members were active consultants to the RIT students.

In 1979 Eugene McDermott, who circulated the Traveling Salon Portfolios, had slide copies of accepted entries in the 1978 and 1979 Annual Salons ready for circulation. Robert Karraker, of the Bowman Gray School of Medicine, as head of the Chapter Program Resources Committee, assembled new audiovisual sets for loan to the chapters. Final details of a BPA Speakers' Bureau were being worked out by Lynn Baldwin and by Martin Scott of the Eastman Kodak Company. Baldwin prepared a brochure on running a chapter in 1977 for those interested in forming and administering such a group. He also gave a training course to chapter officers on the subject at the 1978 Annual Meeting.

In 1976 a BPA Handbook Committee started to revise and produce publications dealing with organizational and managerial matters as an extension of the former memos on recommended practices. A Manual of Procedures approaches completion at the time of this writing.

In 1976 the Committee on Student Affairs started work on a description of biophotography as a vocation. It included a list of the latest sources of formal education in the field and explained the purpose and procedure for certification. It was ready and distributed in 1979 to those requesting it. Also of interest to students was the "Certification Newsletter" produced personally in 1974 by Marilee Caliendo, of the Childrens Hospital Medical Center in Boston. It was particularly useful to aspirants preparing for exams, who lived





Larry Brown and Barbara Jacobs were honored in 1975 by BPA and the Boston Chapter for their many years spent editing the BPA News.

in somewhat geographically isolated communities. Earlier service to students was provided by a program inaugurated in 1969 by Donald Fritts. He invited the submission of special monographs for the Journal. These, and tutorial, multiple-part articles were to be reprinted to supply the Professional Education Committee with informative material. Some separate monographs were printed, but the main benefit came from the tutorials in the Journal itself—about which, more further on.

In 1967 the BPA library service was started by Lucien St. Laurent. His committee furnished 8½ by 11 inch, dry-process, copy prints of Journal papers. Arrangements for microfilm copies were also made. The staff of the BPA NEWS reviewed articles in other photographic journals and maintained a service for furnishing copy prints. This practice was discontinued in 1974 because not enough use was made of the operation.

Tom Hurtgen was made Director of Publications in 1975. In addition to supervising the NEWS and publishing the Journal, he was advisor to those producing such service publications and he guarded them against duplication of efforts.

In addition to meeting notices of related societies, the NEWS continued to carry the material that had been transferred from the Journal—presidential addresses—committee activities—publicity for all meetings—reports on educational programs—chapter news—special accomplishments of members—new members—membership directories—employment opportunities. These were items that kept out members informed and stimulated, yet which would have been burdensome to those seeking only technical information in our Journal.

Special events were announced in the NEWS. For example, in 1977 the Smithsonian Institution created a traveling exhibition on biological photography with the help of Gary Sterner and Lynn Baldwin. Many of our members contributed photographs. The NEWS carried information on how to borrow it for public and professional use.

BPA's services could be brought to the attention of members quickly through the NEWS. For example, the first issue in 1980 carried the announcement of a "Jobs Hotline" just inaugurated. Previously it took six weeks for an employment request to get from editor to reader. The hotline circumvented this delay because someone looking for a position, or for an employee, could call the

telephone number to find out whether any opportunities were open. A three-minute tape recording, kept up to date, reported the current situation. There was no need to wait until it was printed later on. Carol Asimow came up with the idea, and Bill deVeer laid the plans for execution. The Executive Director maintains the listings in the central office.

The NEWS also kept us posted on the activities of organizations similar to ours. Experiences were noted of the Institute of Medical Illustration (IMI), organized in 1966 in Scotland; and of IMBI, founded in 1968 in Great Britain. Many of our members attended their meetings as visitors and lecturers.

Besides keeping members current in their field, the NEWS provides a repository for BPA history—especially of chapter events. It deserves archival treatment for this reason, just as the Journal merits collecting for its reservoir of technical information.

In 1975 Tom Hurtgen, Director of Publications, announced the retirement of the long-time staff of the NEWS—Brown, Jacobs, and Withee. Jerome P. O'Neill, Jr. was appointed to their duties. He and Nancy Hurtgen shared production details for the publication of six issues per year, a plan started in 1974. In 1979 Richard Ray and his wife, Nancy, of Stanford University, took over the work. They produced six regular issues and two extras, a membership directory and an issue devoted to BPA workshops.

The policy adopted for the NEWS did not exclude all non-technical material from the Journal. The relationship of illustration personnel to the users of the service were defined by Eugene McDermott and Antol Herskovitz in a 1974 paper. They were both of the State University of New York (SUNY) at Stony Brook. Recent legal aspects were outlined in a 1975 paper by lawyer William Dornette and by Ronald Irvine in 1976. Current U.S. copyright laws were explained by attorney Mary Beth Peters in 1978.



Ex-Treasurer and Chairman of the Fellowship Committee Al Levin congratulates Tom Hurtgen on his Fellowship in 1978.

The execution of the various administrative phases of BPA activities by the Board, Officers, and House of Delegates constitutes important service to the members. Understandably, this phase may be taken for granted. Nevertheless, special modifications to accede to new wishes of the members are often made and should be appreciated. For example, in 1976 an ophthalmological classification was introduced into the Salon classes, because of a greatly increased application and interest in that rapidly expanding phase of bio-medical photography.

Most medical biophotographers included eye photography in their activities. In addition there was a group of BPA members and others whose work was exclusively ophthalmological recording. They formed the Ophthalmic Photographers Society in 1970.

This gave them the advantage of holding their annual meetings in coincidence with that of the Academy of Ophthalmologists. They were thereby afforded professional contact and a chance to observe the advanced apparatus of manufacturers who would not have found it economically practical to exhibit at our Annual Meetings. Later on they established, through Donald Wong, of the Cabrini Health Care Center, New York, N.Y., a liaison between their publications and the BPA Journal. Our cooperation with the group was not intended to circumvent or infringe their very legitimate interests. Moreover it would be helpful to BPA members doing only occasional ophthalmic photography.

In 1978 considerations were begun regarding the formation of a television section in BPA. Since practically all members were involved with this medium, or about to become so to increasing extents, a cautious approach to such polarization was advised in order to preclude an unwarranted dichotomy.

In the second era the expressed educational aims of the BPA were: 1. to increase the photographic and scientific knowledge of members; 2. to offer guidance in professional and human relationships; 3. to recognize and avoid hazards such as infection, to members and their subjects.

The following sections of this account discuss the implementation of these aims. Meetings, chapter and institutional educational programs, technical innovations, and publications have made the third era predominantly one of educational services.

## ANNUAL MEETINGS

Attendance at Annual Meetings affords psychological as well as technological benefits. Mingling with peers stimulates self-appreciation. For those who present papers or accept BPA work, and for those who don't, the sessions offer a break in the daily routine. For the practical member much attention has been paid in the third era to providing a family vacation interlude. Then too, first-timer's luncheons added to the fraternal atmosphere of the social functions.

The business affairs of the Board and the House of Delegates demanded stepped-up activity on the part of the members involved.

From 1966 on there was one major change in the tenor of our meetings—to the technical programs were added intensive educational sessions. Every meeting had its short courses or workshops, or both. Most were aimed at aspirants in the certification program, but there were also refresher courses for experienced biophotographers. Quite often, RBP candidates met on location for a week before the meeting to attend special training sessions.

BPA educational goals dominated the Annual Meetings. Noteworthy early impetus was given at the 1967 meeting in Toronto (described further on) and by the ambitious six-day workshop and

refresher courses at the 1968 event in Los Angeles. During this meeting, hosted by the Southern California Chapter, Maurice Le Cover, of Cedars-Sinai Medical Center, with co-chairman Jack Arnold, continued the work of Brooks and Vetter by organizing the sessions that served as a pattern for subsequent programs. The advent of this aspect of our meetings and the inauguration of the triennial affairs mentioned in the foregoing section, put our Annual Meetings in a new light.

## Diversification

"Convention" was changed to "Annual Meeting" in the early years. The next step toward individuality was the adoption of catchy slogans to stimulate interest. For example, "Dixie, the Place to be 63"; or "Get Your Kicks, in the Stix, in 66". In 1967 a thematic title was first used: "Photography in Scientific Investigation." Then in 1974, "New Dimensions in Biological Photography"; and "Focus '77, Education of the Biophotographer"; and in 1978, "Biological Conference on Scientific Imagery."

"Biocommunications—70" was the first example of the logotype usually, but not always, reserved for the combined, triennial meetings—held in '70, '73, '76, and '79. The idea was the brain child of Herbert R. Smith—artist and photographer at the Baylor College of Medicine. The 1970 meeting was held with the AMI. The other meetings included HeSCA, and in 1979, the Guild of Natural Science Illustrators (GNSI) was also invited to send entries to the Salon. The post of coordinator was rotated among the groups.

The BPA attendance at Annual Meetings averaged around 275. An occasional meeting drew more, such as the one in Toronto in 1967, which attracted 340, the largest number to that date. Then followed the Baltimore Meeting (1977) with 425 and the Seattle Meeting (1978) with 375. The figures and analysis for the tripartite Biocommunications '73 are available and are as follows:

| Attendees      | Attendance | Percent* |
|----------------|------------|----------|
| BPA            | 269        | 48.8     |
| AMI            | 110        | 20.6     |
| HeSCA          | 170        | 30.6     |
| Students       | 54         | —        |
| Not affiliated | 381        | —        |
| Total          | 984        | —        |

\* Based on totalling the number of members registered

Such attendance and the cross-pollination of ideas made these combined meetings popular and worthwhile. Organizing the Meeting were Mel Schaffer, of the University of Virginia School of Medicine, as General Chairman; and Wayne Williams, then of Duke University School of Medicine, Chairman for BPA.

## Representative Programs

An appreciation of the state of biophotographic technology can be gained from looking over the outlines of some of the thematic meetings. The need for educational sessions to keep members abreast of technical advances then becomes apparent, too. Basically all of our earlier meetings presented a similar cross section of communication techniques. But the later ones concentrated on arranging a more complete coverage of some important phase of illustration service over a meeting period longer than the previous three days.



Howard Tribe, and his wife, Leah, enroute to the 1967 BPA Annual Meeting in Toronto.



Marianne Gaettens chaired the 1967 BPA Annual Meeting in Toronto.

### 1967—“The Role of Photography in Scientific Investigation”

Each section of the program was introduced by an invited expert. New methods, materials, instrumentation, and applications were then presented. An outline is as follows:

*Photography in Science*—the tungsten-halogen light—white-room lighting for patients—immunoelectrophoresis photography—the role of instant cameras—radioautography and alfaradiography—photography in reporting research.

*Cine and Television*—several basics—animation for surgical films—neuropsychiatric cinematography—new illumination for surgical photography—video recording in radiology—televising surgery.

*Special Techniques*—ultraviolet applications—electron microscopy—photomacrography—adapting Ektachrome Film to the gastroscope—fluorescence photomacrography of the cerebral circulation—diagnostic capabilities of infrared photography—recording electrophoresis patterns—intragastric photography—laser micro beam applications in dentistry.

Three refresher courses were given over a four-day period prior to the main meeting. Workshops on dental, forensic, and natural science photography were also held.

### 1976—“Biocommunications '76”

This joint meeting was a landmark event and must go down as the most successful venture of its kind. It was somewhat overwhelming in its scope, hence not feasible as a regular feature. There were 166 participants on the program itself. The topics were grouped in nine blocks for presentation.

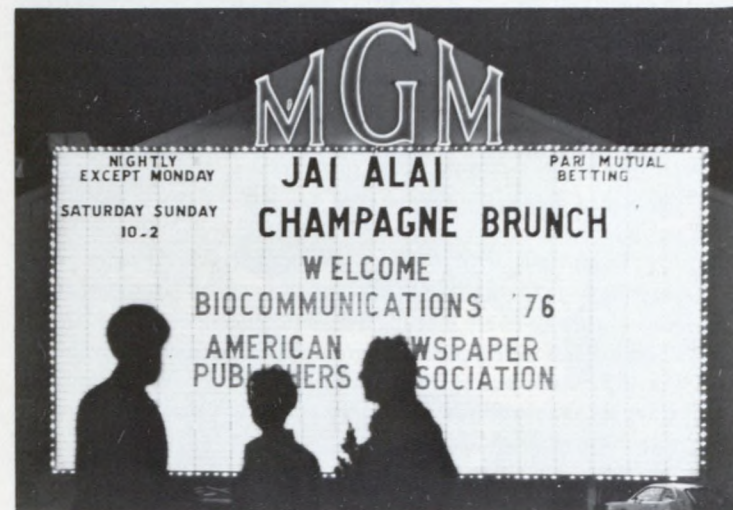
- The Objectives—goals and concepts
- The Organization—production processes
- The Coordination—meshing the processes
- The Theory—principles and methods
- The Design—arranging finished elements
- The Medium—principles of selection
- The Methods—processes and techniques
- The Money—administration and finances
- The People—personnel factors

Each block was presented on a “horizontal” basis; that is, a given phase was investigated on succeeding days. For example:

*The Theory* ran over four half-day sessions. The sub-topics were: photographic lighting, electronic flash—light, psychology of color—communications and learning, non-verbal communication—ethics, legal aspects, copyrights.

This horizontal approach was favored over the “vertical” presentations during some of the previous joint meetings, in which a given block was completely covered each half day. Some complaint was evoked—the vertical mode unduly compressed the presentation and strained the comprehension of the topics in each block.

The complexity of joint meetings incurred other problems. The 1976 and 1979 affairs were integrated, whereas the 1973 and other meetings were not. When the basic program was integrated, each session was designed to be useful to those with any affiliation. There were no concomitant presentations. When not integrated, each organization mounted and attended its own sessions, except for some general events. However, members of other groups could attend at will. Integration proved to be the more desirable.



BPA welcomed in lights at the 1976 Meeting in Las Vegas.



The Salon at the 1976 Annual Meeting. The general Business Meeting entertains reports.

Usually the last day of the meetings comprised “wrap-up” sessions. These were devoted to discussions of new and fine points and to bases for coordinating the various phases of communication. During the days preceding the lecture presentations, individual business meetings and BPA workshops were conducted.

Some of the statistics of the 1976 meeting are as follows: The total conference registration (members, guests, families, and exhibitors) was 1,432. Figures for active participants are given in the table.

| Attendees      | Attendance | Percent |
|----------------|------------|---------|
| BPA            | 275        | 45.9    |
| AMI            | 125        | 20.9    |
| HeSCA          | 198        | 33.2    |
| Students       | 83         | —       |
| Non-affiliated | 288        | —       |
| Total          | 969        | —       |

It is interesting to note the similar proportionality of this and the 1973 meeting.

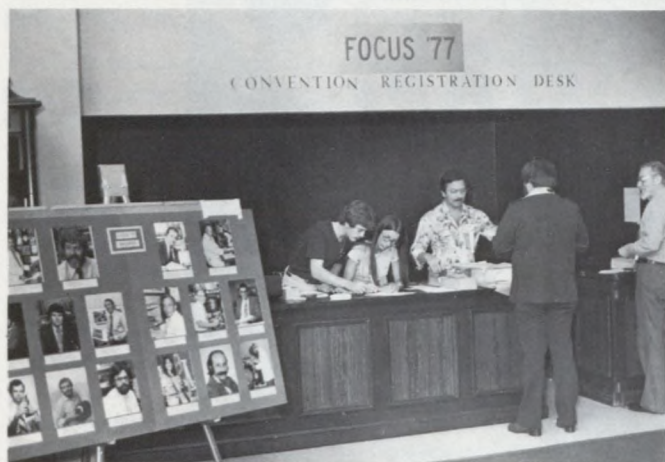
In 1976 BPA registrants from outside the USA came from—Arabia (1); Australia (1); Canada (28); Cuba (2); England (3); Finland (1); Mexico (1); South Africa (1); Sweden (5).

It took two years to prepare the 1976 meeting. It was a tremendous challenge for all, especially for the chairholders. The General Coordinating Chairman was Will E. Renner, of the University of California in Davis. For BPA, Richard H. Ray and Paul Miller; for AMI, Fred M. Harwin and Laurel V. Schaubert; for HeSCA, William L. Millard and Daniel J. Tone.

From the consensus of committees and attendees it was deemed a successful meeting as a triennial event but too involved and replete for consideration as a federated yearly affair. As a matter of fact, the complexity and broad coverage of the programs and Salon categories discouraged many of the rank-and-file BPA photographers. They were more interested in meetings having a greater



Three women who have influenced BPA for many years view the 1972 Salon—Stella Zimmer, Anne Shiras and Maria Ikenberg Lindberg.



Tom Burns receives his RBP Certificate from Tribe and Newman at the 1978 Annual Meeting.

proportion of photographic technological activity. In 1979 consideration was begun of making joint sessions a five-year event.

It should not be construed that the progressiveness and magnitude of the 1976 Meeting overshadowed the import of regular BPA conferences. An outline of the topics of the 1978 Annual Meeting demonstrates this point.

#### 1978—“Biological Conference on Scientific Imagery”

BPA's role in biomedical communication—types of future records and images—new optical elements—holography—electronic imagery—videodiscs—computer-controlled animation—new lighting equipment—status of television—photographic measuring of total skin surface—fluorescin angiography—photographing otolaryngological microsurgery—slit-lamp biomicrography—densitometry for evaluating dental stains and electrophoretic gels—x-ray prints and slides—light-scanning system for enhanced depth of field in photomacrography—photomicrography of small particles and of suspended organelles—time-lapse cinephotomicrography of live tissue cultures—recording microbial growth in test tubes—photography of the Shroud of Turin—photography for Project Hope in Egypt.

Clearly the last few years have seen amazing advances in biophotography. The *camera obscura* image had come of age.

The 1978 meeting also included basic lectures on improved methods for photographing patients, anatomy, surgery, and specimens. Close-up nature photography with flash illumination was covered. Darkroom techniques and department design as affected by advances in automation received attention.

Finally there is the personal activity aspect of our meetings to weigh. Members and their families find them advantageous and enjoyable. Those unable to attend can gain some idea of the events that engage the participants from reading the NEWS—and much of the technical information appears in the Journal. But a full realization of the benefits of attendance and of the immediacy of the data can only be gained by attendance. The 1979 affair was fuller than the regular ones, with over 120 papers. Nevertheless, the following summary indicates the general tenor of our meetings.

#### 1979—“Biocommunications '79”

*Saturday, August 25*—Participating associations conducted business meetings; BPA held workshops and refresher courses. Lynn Baldwin gave a training course to chapter officers based on a brochure he had prepared. Family entertainment started in the evening with visits to feature attractions of the Kansas City area.

*Sunday*—In the morning there were more business meetings, continuation of the workshops, and sessions devoted to the BPA Certification Program. The commercial exhibits and Salon were on display by the early evening. The grand opening reception and award ceremonies were conducted.

*Monday*—Respective membership meetings were held separately but concurrently. Non-participating families took a city tour. After lunch the keynote address to a general assembly was given by David Prowitt, of the Science Program Group Inc. Later a tennis tournament and some running events were offered to members and families not occupied with business and learning. In the evening a combined associations banquet was experienced. The Broedel Memorial Lecture was delivered by Frank Armitage of “Fantastic Voyage” and OMNI note. Top BPA awards were given out.

*Tuesday*—The scientific program began with the first of the five program blocks, “Organization and Management.” Families

### Cities Hosting BPA Annual Meetings

| Year  | Location      | BPA Chairperson                     | General Chairman |
|-------|---------------|-------------------------------------|------------------|
| 1965  | Philadelphia  | Richard C. Matthias                 |                  |
| 1966  | Lexington     | F. D. Wallace<br>W. C. Williams     |                  |
| 1967  | Toronto       | Marianne G. Gaettens                |                  |
| 1968  | Los Angeles   | Maurice LeCover                     |                  |
| 1969  | Rochester, MN | Lardner A. Coffey                   |                  |
| *1970 | Houston       | Lynn Baldwin                        | Herbert R. Smith |
| 1971  | Ottawa        | John D. deBlois                     |                  |
| 1972  | Chicago       | Leon J. LeBeau                      |                  |
| *1973 | Richmond      | Wayne Williams                      | Melvin Shaffer   |
| 1974  | New York      | Antol H. Herskovitz                 |                  |
| 1975  | Phoenix       | Richard M. Williams                 |                  |
| *1976 | Las Vegas     | Richard H. Ray                      | Will E. Renner   |
| 1977  | Baltimore     | James F. Todesco<br>Raymond E. Lund |                  |
| 1978  | Seattle       | Dale Tilly<br>William R. Hawkins    |                  |
| *1979 | Kansas City   | Fredrick K. Hissong                 | Benny Benschoter |
| 1980  | Boston        | Jerome Glickman                     |                  |
| 1981  | Toronto       | Christine Pawlik<br>Ronald Irvine   |                  |

\* Joint Meetings



A lighting workshop at the 1978 Annual Meeting. Mike Tatum demonstrates bare-tube flash lighting of a large group.

toured the Nelson Art Gallery and the Harry S. Truman Library. The afternoon saw the second block, "Methods and Medium." A disco party livened the evening.

*Wednesday*—"Interpersonal Communications" formed the topic of the third block. Families were hosted by the Hallmark Card Facility. In the afternoon discussions of the theory and objectives in planning media comprised block four. Kansas City's Trail Town drew family members.

*Thursday*—How to prepare for the future demands of communication, "Challenge of the Eighties," was the morning topic. In the afternoon general, wrap-up discussions were held to bring together the technical and other concepts made evident in the prior sessions.

Of huge interest to everyone was a lecture on the Shroud of Turin, by Vernon Miller. And the AMI exhibit of the 83-year-old "Urban and Schwarzenberg Collection of Medical Illustrations" intrigued all visitors.

The 1979 meeting also introduced the concept of "poster" sessions. Spaces were provided for the lecturers who made such presentations. Prints and diagrams were related to equipment, applications, and techniques. Tables carried working demonstrations. The booths ran continuously and were enthusiastically visited.

The usual BPA breakfasts and luncheons were interspersed during the week.

Closed-circuit television featured live and recorded coverage of events and carried the programs throughout the hotel. A constantly updated video bulletin board reflected the progressive tenor of the conference.

#### Business Aspects

The usual administrative matters for BPA were conducted at all the annual events, as well as certification sessions and meetings of the House of Delegates. A recent decision relating specifically to the Annual Meetings was to obtain liability insurance for the sessions. This was started in 1977 as a result of the efforts of Antol Herskovitz.

Ways to attract commercial exhibitors always received attention. Early in the third era, our relatively low attendance figures discouraged many steady and potential exhibitors. However, they came to realize that BPA members who came to the meetings were not on a junket. They were all serious visitors who had influence over large budgets in their institutions. In the past few years, about 35

booth spaces were sold at general meetings and 60 at combined affairs. At the joint meeting in 1976 there were 63 exhibitors. Sponsors of coffee breaks and suppliers of loaned equipment for workshop and other demonstrations numbered eight.

To make the meetings more attractive to exhibitors, a new regular feature, the *Bio-Bugle*, was introduced in 1976 under the editorship of Paul Miller. This was a 16-page brochure for distribution to the entire membership and a much larger list of persons interested in biocommunications. Space for the advertisements of exhibitors and other concerns was provided. In addition, local restaurants and cultural events were written up for the convenience of attendees. In 1977, the name was changed to *BPA Bugle* and the issue netted \$1,200 toward the expenses of the meeting.

#### BPA SALONS AND EXHIBITS

In the third era the Salons began to draw a greater number and variety of entries. In 1966 for example, there were 66 entrants, including participants from Austria, Britain, India, Italy, New Zealand, and Poland.

Exhibitions for the combined meetings were more elaborate. The 1979 Salon drew work from entrants in AMI, BPA, HeSCA, and GNSI. Entries in specific categories were sent to designated cities for judging. Accepted entries then were forwarded to Kansas City for the meeting. The following table was made up from the entry blanks and shows the cities where judging took place:

A particularly well-thought-out representative panel of judges for the prints and slides was selected—two photographers, specialists in medical and natural-science photography—an anatomist—a pathologist—a biomedical artist and ophthalmic photographer—and a supervisor of quality control from a large custom photographic finishing laboratory.

The physicians were especially helpful in judging whether the photographs clearly showed the conditions recorded; quite often the prints did not, even when the photographic quality was otherwise good. All the subject-matter experts were careful not to let familiarity and simplicity alone (of many of the subjects) be a cause for rejecting a good technical record. They realized that the photographs had been made to inform those unfamiliar with the subjects. Some records of course, excited even the experts, but they were not given acceptance priority over well-executed common subjects.

Over the years, interest in Salon submission fluctuated, depending on the intensity of promotion, the type of meeting, and the

#### BPA 1979 Salon

| Division and Categories                                   | Cities      | Awards* | Judges |
|---|-------------|---------|--------|
| Medical and Natural Science<br>(Graphic Illustration), 10 | Kansas City | 40      | 5      |
| Still Biophotography, 10                                  | Augusta     | 46      | 7      |
| Still Media Festival<br>Exhibits, 2                       | Augusta     | 5       | 9      |
| Film Festival, 2  | Dallas      | 8       | 5      |
| Video Festival, 2   | Ann Arbor   | 10      | 8      |
| Learning Resources, 1                                     | Kansas City | †       | †      |

\* Approximate, depending on number of honorable mentions

† Non-competitive displays utilizing diverse media.

vicissitudes of getting out notices. This last factor was responsible for only a moderate response to the 1979 Salon, in spite of the otherwise well-planned event. As is true for most activities, every link in the chain of preparation must be soundly forged.

The Salons gave members, and sometimes clients who viewed them a chance to study the level of quality required for effective scientific and biological illustration. Naturally those who had successful entries were happy. And those seriously aspiring members whose work was rejected also gained, because they were brought to realize the need for finding ways to improve their work. The agony of rejection was often a salutary experience for those who had not yet had many opportunities to observe good contemporary scientific photography—they at least learned that their results were lacking in impact, clarity, accuracy, or technical quality and were thereby prompted to improve their work.

In 1975 a change in one of the awards was made—the BPA Medical Education Award. This had been sponsored by *Modern Medicine*. Cheryl Waixel, editor of *Biocommunications*, in cooperation with Henri C. Hessels (Johns Hopkins Hospital) and Lester Heitlinger, of the House of Delegates, arranged for her journal to give the award. Individuals were recognized for the best entry in seven categories. The editor reserved the option of publishing some of the pictures.

## BOARD OF REGISTRY

The biophotographic educational activities of BPA and institutions during the past few years have assiduously served the aims of certification. Yet ironically, they may have slowed the tide of actual registration. The BPA courses have prepared many for success with the exams. But the response from students completing formal institutional courses has been disappointing. It is likely that graduation signified a mark of attainment similar to that of "RBP." Again, other photographic fields have opened up for such graduates. Nevertheless, a member on the Registry could substantiate much more practical experience—five or more years—than most other neophytes.

In 1979 and 1980 BPA officers and committees began serious considerations of means for stimulating the registration program. Will Renner appointed Debi Stambaugh and Paul Miller to the task of preparing a mailer for prospective employers. It would evaluate the credentials of an RBP and indicate the advantages of hiring the registrant. This was part of our continuing employment service, so it was also designed to stimulate participation in and completion of certification.

The professional esteem afforded the Registry is maintained by the size of the roster. For the early eighties a critical factor looms in this respect. The program had certified 218 members and 50 non-members by 1979. However, 183 had achieved the rating through the established experience route. The current listing comprised 10 who were deceased and 39 who had retired. By 1985 most of those with EEP status will no longer be working in the field; hence the need for concerted efforts to swell the Registry with new members.

Those directing biophotographic departments were urged to encourage their assistants to enter the registration program. Thereby they would enhance the value of their own RBP and create staffs of higher competency. Registered photographers were asked to counsel and assist aspirants working toward the exams. Reasons were being sought to discover why many dropped out, once having started the program.

There was a surge of applications before December, 1978, which was the cut-off date preceding an increase in fees necessitated by a rise in costs. So in 1979 there were 38 aspirants working toward certification. Yet only four took the exams in that year.

Obviously there was fertile ground for those wishing to help participants to complete their assignments.

Good reasons for entering and staying with the program were revealed in the results of a 1975 questionnaire circulated to RBP's by the Board of Registry. The following data were extracted from those who had gained their registration *via examination*:

| Percentage | Benefits                                     |
|------------|--|
| 96         | Helped in various ways                       |
| 60         | Attitude of institution toward them improved |
| 46         | Received promotion                           |
| 46         | Gained salary increases                      |

In the biomedical field the ratio of RBP's to the large number of practicing biophotographers is exceedingly low. Concerted efforts were begun in 1980 to register at least 50 by 1981.

Two decisions by the Board of Governors impinged on the certification functions. The Governors accepted the responsibilities of evaluating and directing educational programs. They also supported the proposal of the certification group that the Board of Registry investigate the possibility that the requirements for RBP could be accepted as academic credit in some baccalaureate programs. Subsequently some RBP's have gained as many as 40 credits for their professional certification.

### Board of Registry

#### Chairman

Howard Tribe, RBP, FBPA, '81

#### Executive Secretary

David S. Hansen, RBP, '81

Helen E. Facto, RBP, '80

R. F. Irvine, RBP, FBPA, '83

Richard C. Matthias, RBP, FBPA, '81

Kenneth McGregor, RBP, '82

Richard H. Ray, RBP, FBPA, '82

Debi Stambaugh, RBP, '82

George N. Tanis, RBP, '80

Robert C. Turner, RBP, '80

## HOUSE OF DELEGATES

It would be repetitious to go into detail regarding the actions of the House of Delegates. This body has been very much involved in suggesting, initiating, and implementing a large portion of the accomplishments of BPA already described. The Delegates also have been influential in the progress of the Chapters—to be recounted in the next section. The specific functions of the House are indicated by the list of committees herewith.

The House continued to be responsible for the steps required for admitting and chartering new Chapters. The desires of chapter members surfaced in the meetings of the group and were processed by it. At the 1979 Annual Meeting 29 Chapters were represented by 48 Delegates.

As early as 1975 the House approved Boston as the site for our anniversary affair. A committee was formed to investigate costs and design of a commemorative medallion, which was proposed by the



## BPA House of Delegates Committee Structure 1980

### *Speaker and Clerk*

Lawrence R. Reynolds

### *Assistant to Clerk*

Kenneth V. Michaels

### *Admissions*

Harald H. Richter

### *Constitution and Bylaws*

John W. Alley

### *Ethics and Grievances*

Richard W. Kulmann

### *Merit Awards*

Henri Hessels

### *Rules and Procedures*

Verlin Yamamoto

### *Credentials*

Kenneth V. Michaels

### *Elections*

Kenneth V. Michaels

### *Gifts and Bequests*

Margaret G. Cubberly

### *Membership*

Robert O. Karraker

### *Nominating*

Thomas O. Uithoven

### *Clerk Search (ad hoc)*

Wade Stephenson

New York Chapter and later struck for the 1980 Annual Meeting. Another act at that 1975 meeting was the approval of an ophthalmic category in the Annual Salon, as requested by Barbara L. Turkington of New York City.

## CHAPTER ACTIVITIES

It would be presumptuous to liken BPA to a "mighty oak" springing from an acorn planted by our founders. Nevertheless, they did sow a seed for a fruitful tree of noteworthy standing. And just as a tree flourishes with each new branch, so did BPA gain vigor with each new Chapter. The trunk—the parent body rooted in the newly turned loam of biocommunications—extends to the leading branch—the Journal nurturing and measuring its height and direction. Yet without the ramifications of the Chapters, the tree would be dwarfed. Only a tree with good roots bears fruit.

The Annual Meetings hold the Association together. But without the comparable activities of the Chapters, there would have been little to hold together.

BPA needs chapters for structure; chapters need BPA for coherence. This history shows that the Board has continually had the welfare of the chapters in mind. The chapters have demonstrated their assiduity in advancing the ideals of BPA.

### Chapter Ventures

A potent single factor in maintaining the existence of BPA has been the regional and local meetings. These gatherings have advanced technical proficiency, explored new applications, implemented educational programs, and welded fraternal solidarity. The presentations and lectures have often led to Association lectures; also to Journal articles—although, our editors have felt, not quite often enough.

A book could be written on chapter history alone. Such is not practical here. The BPA NEWS has furnished accounts of chapter endeavors and of the people who further them. Here, an outline of some of the programs that expressed the progress and trends of BPA and biocommunications during the first five years of the third era must suffice. They set the pattern for the rest of the era and are presented in the next section. Educational and television contributions are covered in subsequent sections.

The far-seeing institutions that have encouraged our members are named when possible and when not already noted. Many members have moved to varying localities, where they are usually supported by the new institutions.



Some chapters hold a salon at their meetings. James Spaw (left) and Walter Williams judge a show for the Prairie Chapter.

Data are not obtainable on all particulars, so omissions of the efforts of any chapters do not mean that those mentioned were the only ones conducting a given course of action. Naturally chapters in densely populated areas were able to mount more ambitious projects than those in regions where population centers were widely spaced. In 1980 the Midsouth Chapter, with 55 members had engendered enough interest to publish the full-page Midsouth Newsletter.

The Chapter also recognizes one of its members with a "Biophotographer of the Year" award. Dixie Knight, of the University of Arkansas Medical Center, won the first plaque in 1980 for her work in 1979.

The trend in programming was that of conducting local, one- or two-day symposia and seminars. These were expanded into regional meetings. In this way it became practical to invite specialists from distant localities to make the sessions well worth the efforts to attend.

In reading accounts of chapter activities, some changes in names ought to be borne in mind. For example, the Rochester, NY Chapter drew members from Syracuse and Buffalo. Accordingly, its name was changed to "Western New York" in order to encourage attendance from a wide area and more accurately to designate the makeup of the group. Other examples are: Pittsburgh to Western Pennsylvania; Arizona to Arizona-New Mexico; Chicago to

### New BPA Chapters Since 1965

#### Year

|      |                  |                    |
|------|------------------|--------------------|
| 1966 | Southwest        | Gerard T. Rote     |
| 1966 | Blue Grass       | Kaye Wallace       |
| 1970 | Southern Florida | Allen Weinberg     |
| 1970 | Chesapeake       | Raymond E. Lund    |
| 1977 | Rocky Mountain   | Richard F. Carter* |
| 1977 | Connecticut      | Kenneth P. Kostuk† |
| 1977 | San Diego        | Robert C. Turner‡  |
| 1979 | Southern Ohio    | John E. Ford, RBP§ |
| 1979 | Saudi Arabia     | Richard Massey¶    |
| 1979 | Gateway          | Robert O. Karraker |

\* University of Colorado.

† Yale University, New Haven.

‡ VA Hospital, La Jolla.

§ Medical College of Ohio

¶ King Faisal Hospital, Riyadh

Abraham-Lincoln Illinois; Arkansas to Mid-South; Philadelphia to Delaware Valley; West Virginia to Southeastern; Southern Florida to Florida; Southwestern to Texas.

A unique circumstance prompted the dissociation of the St. Lawrence Valley Chapter. Most of the members in the Valley region and a large proportion of those in Montreal were French speaking. Since the affairs and lectures of the former Chapter were conducted in English, the francophone members were not able to enjoy the benefits of the meetings. Hence, in order to consolidate better their interests and fraternity, an alternative was adopted. The group was keenly active and enterprising; the members wished to gain the advantages accruing from sessions similar to those of our chapters. So they formed the "Association pour le Development de l'Audio-Visuel et de la Technologie en Education"—ADATE. The new society published its own journal under the acronym. It served many scientific photographers working for governmental agencies as well as other biological institutions, including those involved with the health sciences. As its name implies, this publication dealt more with the pedagogic and equipment aspects of communication than with the technical phase.

The BPA Montreal Chapter continued to accommodate anglophone members in the area until 1977 when it joined with the St. Lawrence Valley Chapter. Members from Kingston, Ontario, came to the meetings of the Northeastern Chapter and were host to one of the sessions.

#### Meeting Highlights

Monthly and other short chapter meetings were too numerous to cover here. A five-year sampling of the representative longer meetings, and some of the unique shorter ones, serves to indicate the comprehensive interests of BPA. In the 15 years of the third era, all the chapters have made outstanding contributions.

#### 1965

*Southeastern.* Thomas W. Lanier, of the VA Medical Media Service, Augusta GA, meeting Chairman. The Chapter held its first two-day meeting. In addition to routine medical topics, forensic photography was covered by Wendell Musser and fluorescent



Chapter meetings as well as Association affairs often include family activities. Alfred Lamme caters to Cathleen McDermott at a New York Chapter picnic.



Members of the Southwest Chapter on a field trip learn about cave photography during a "hands-on" trip.

photography of the teeth by William B. Manuel, of Emory University School of Dentistry. Leonard Hart, of the VA Medical Center, Houston, urged the members to take a new look at the capabilities of 8mm cinematography.

*Boston.* Bill Shannon, meeting chairman. A second two-day general workshop was held. Some of the special demonstrations were: X-ray reproduction by John E. Withee, of Peter Bent Brigham Hospital; cinephotomicrography by Dr. E. Friedman, of Massachusetts Eye and Ear Infirmary; a new clinical camera, by Paul Showstark; photography of electrophoresis by Clayton Hubbard, of Massachusetts General Hospital; and Diazo applications, by Donald Withee.

*Pacific Northwest.* Dale Tilly, of the VA Medical Center in Seattle, symposium Chairman. The two-day session was the joint effort of the Chapter and the University. A wide range of topics was covered. Papers were given by authors later to become prominent in BPA affairs. Hans Dommasch, on medical laboratory and natural science photography; Donald Fritts, on veterinary illustration; Frank McWhorter, Ph.D., on macro lenses; John R. Newby, then of the Mason Clinic, Seattle (now at the VA Medical Center, Long Beach, CA), patient photography; Clifford Freehe, on dental recording; Jim McKim, of the University, on portraiture for public relations; Dr. David McIntyre, on ophthalmic photography.

*St. Lawrence Valley.* Jean Garneau, then of the University of Ottawa, now of Centre Audio-visual, Cité de la Santé de Laval, Québec, President. The Chapter changed its schedule to four quarterly meetings and one social event. One of its speakers, Jean Gauthier, of the Montreal Institute of Cardiology, foreshadowed the inroads of electronics into medicine as it affected the work of the medical photographer. In May the Chapter participated in the first regional symposium in Canada. This was put on by the three chapters in eastern Canada.

## 1966

*Southern California.* A short meeting was held in the Wexler Film Productions studio, Los Angeles. Member Sy Wexler showed his award-winning film, "Biochemistry and Molecular Structure". This film won the Orbit Award at the Anzacs Scientific Film Festival of Australia and New Zealand. He also released many biomedical features and documentaries in the natural sciences.

*Western New York.* Harold Baitz, President. The chapter welcomed Dr. Robert Ollerenshaw, Director of Medical Illustration, Manchester England Royal Infirmary, who was on the roster of speakers.

*Lake Ontario.* David Dunn, meeting Chairman, of the Princess Margaret Hospital, Toronto. The chapter hosted a Northeast Regional Meeting in Kingston, Ontario. Technical aspects of photography were the main topics. Veterinary and zoological photographic methods also were discussed.

*Ottawa.* Dr. D. J. Hurley, Assistant Professor of Radiology at Ottawa University, meeting Chairman. Career planning was the theme of an exposition organized by the Ottawa Collegiate-Institute Board. The BPA Chapter represented the biophotographic interests. H. Teare of Castle Frank High School, stimulated the interest of students. At another meeting, Allan Couper and Benny Korda, of the National Health and Welfare, hosted a session devoted to physical fitness.

*Northern California.* Will E. Renner, meeting Chairman. The chapter arranged a combined meeting at the Stanford Medical Center. Participants were The Industrial Film Producers Association, the Society of Photo-optical Instrumentation Engineers, the Society of Motion Picture and Television Engineers, and the Society of Photographic Scientists and Engineers of Southern California. The technical, anatomic, and informative considerations involved in making the Twentieth Century Fox Production of "Fantastic

Voyage" were studied. The chapter also participated in "Health Careers Day" sponsored by the Orange County Medical Association and the Orange County Pharmaceutical Association. On display was Ron Christopher's BPA portable exhibit. Members manned this booth for about 300 visitors and conducted panel discussions.

*Prairie.* George V. Station, then of the Creighton University College of Medicine, Omaha (now of the VA Medical Center, Indianapolis), meeting Chairman. A one-day meeting was held that dealt largely with the value of biomedical photography to the physician.

*Wisconsin.* J. E. Ellingboe, of Marquette School of Medicine, President. The Chapter prepared a traveling exhibit of its own work. This was shown at Marquette and at the Milwaukee County General Hospital, before distribution to other civic centers.

*Western Pennsylvania.* Paul Newman, seminar Chairman. Their first annual seminar was held in the Mellon Institute. Clinical photography, photomicrography, infrared color photography, audiovisual techniques, psychiatric documentation, and science films were discussed. Fritz Goro was guest speaker for the evening. A high school class attended an afternoon session.

*Delaware Valley.* Foster E. Moyer, Secretary. An unusual meeting for biophotographers was held at the Photographic Division of the Bethlehem Steel Company's plant. A more conventional event was arranged at the Wyeth Laboratories, where the use of video tape recording was demonstrated.

*Arizona-New Mexico.* Cecil D. Gilliam, President. Electron microscopy and closed-circuit television were featured at the October meeting hosted by him at St. Joseph's Hospital in Phoenix.

*Capitol.* Raymond E. Lund, of Johns Hopkins University Medical School, meeting Chairman. The chapter devoted an evening session to endoscopic photography, a technique that was becoming increasingly practical as fibre optics were improved.

(The end of 1966 was marked by an upsurge in the evaluation of television as a medium. This was swelled by the topic showing up at the subsequent short meetings as well as at representative longer sessions. Television programs were also a feature of Association affairs. Meetings devoted entirely to this medium are discussed further on.)

## 1967

*Prairie.* Sarah Merrill, of the VA Medical Center, Topeka, Kansas, in the chair. The BPA Board held its Spring Meeting during the Symposium. Marianne Gaettens, of the Princess Margaret Hospital, Toronto, outlined the program for the upcoming Annual Meeting in Toronto. Endoscopic photography was a major feature of the technical part of the symposium, with the Japanese Olympus Gastro Camera in the fore.

*Upper Midwest.* Ralph M. Glazier, President. A joint meeting was held at his facility in the National Animal Disease Laboratory,



Margaret Conneely, first woman President of the Chicago Chapter, checks on the Christmas Party she organized. Fred Conneely and Leon LeBeau seem content.

Ames, Iowa, with the Midwest Industrial Photographers. Survey lectures on the activities of clinical, dental, and veterinary departments were offered. A visit to the US Department of Agriculture Research Facilities was made.

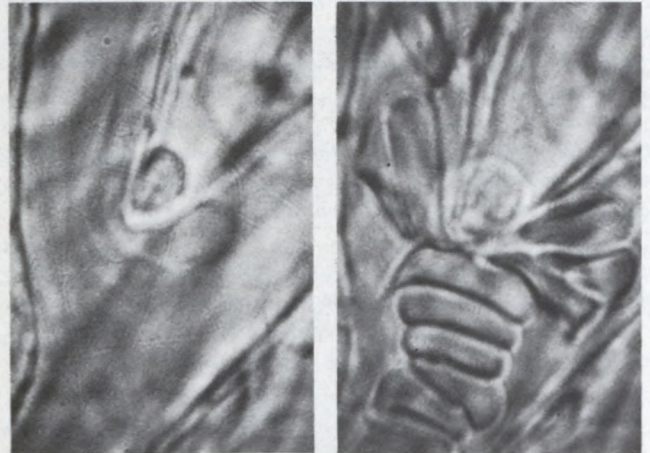
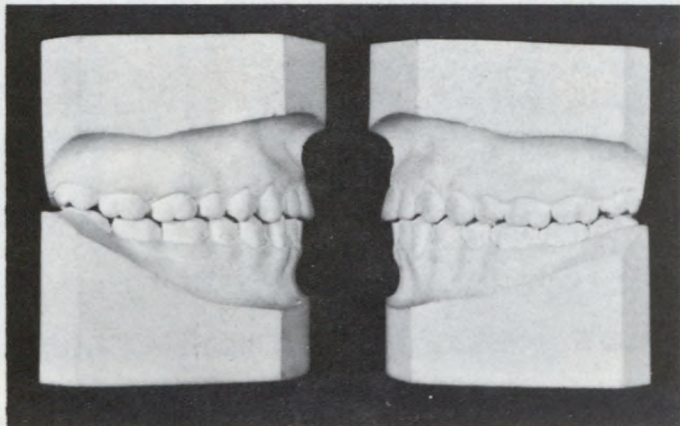
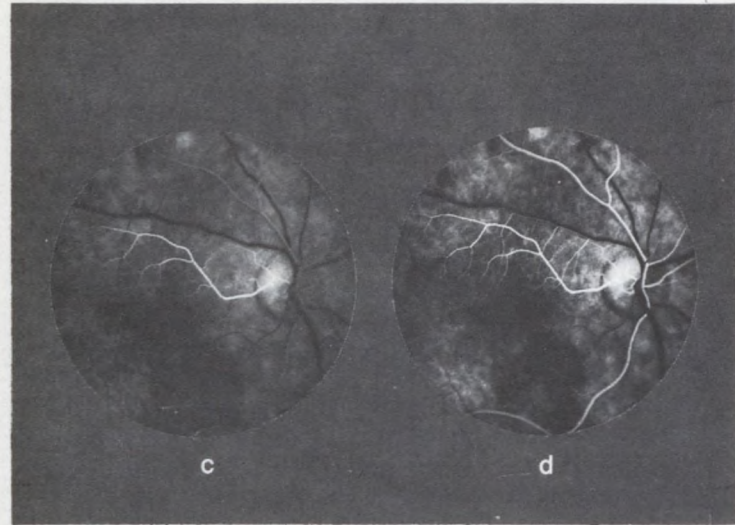
## 1968

*Arizona-New Mexico.* Thomas Uithoven, meeting Chairman. The chapter mounted a three-day symposium in the Tucson Medical Center. Subjects ranged from photomicrography, fundus and dental photography to pediatrics, professional relations, and ethics. A salon attracted many entries from Chapter members.

*Midsouth.* Alex Gravesen, meeting Chairman. A panel of color prints and transparencies for an indoctrination exhibit at the VA Hospital in Memphis was prepared. This was done as part of a local Health Careers Fair. In this year the chapter also held a one-day session on advanced photographic, microscopic, and television equipment in the St. Jude Children's Research Hospital in Memphis, hosted by Jerry Luther. In attendance were 250 scientists from various disciplines.

*Central Indiana.* Seymour Friedberg, of the University of Indiana Medical Center, meeting Chairman. Meetings included demonstrations of video tape recording, chromosome photography, pediatric study, and nuclear medicine. The betatron unit in the Methodist Hospital was visited.

*Chicago.* Fredrick T. Sharp, of the University of Illinois Medical Center, President. At a meeting at Hines VA Hospital, Helen Silver, of the Childrens Memorial Hospital, Chicago; Albert Levin, then



Comparison and serial records are an important part of informative photography. Morphological differences between the feet of a normal and mongoloid child are readily observed in a photograph, whereas many words would be needed for a verbal description. Stages in the filling of the cilio-retinal artery during fluorescein angiography are recorded in these records made by Don Wong. A composite of five views of a dental model was made by Dean Dablow, of the College of Dentistry, University of Iowa; two of the records are shown here. Flowing in the microcirculation, red blood cells are momentarily halted at a branch. (An article by Jabs and Robb on this topic appears in the Journal listing (1965) of the section on cinematography.)

of the Hektoen Institute; Joseph Kozicki, of the University of Illinois Medical Center, and Clark Moore, of the Hines VA Hospital, presented a panel discussion moderated by Dr. Leon LeBeau. The topic was expediting the production of high priority requests. Photographic materials that made fast delivery possible were described. (This was before the automation that was to come shortly.)

## 1969

*Southern California.* Frank Poynter, now of the VA Hospital, Hampton, Virginia, President. Among other meetings, a visit to the photography unit at the Mount Wilson Observatory was scheduled. This followed a previous astronomy visit to NASA's Space Flight Operations Facility to learn about the Surveyor television ground data system and the Mars microscope.

*New York.* George N. Tanis, of Montfiore Hospital, meeting Chairman. A session was devoted to an appraisal of the trend toward the use of automatic photomicroscopes. The impact of these instruments was beginning to be felt.

*Ottawa.* Lucien St. Laurent, meeting Chairman. The group viewed a film, "Bernadette," featuring the mechanical arm produced by the Montreal Rehabilitation Institute. It departed from the usual technical presentation by spotlighting the human interest theme.

## 1970

*New York.* Rose Marie Spitaleri, of Lennox Hill Hospital, in the chair. Glenn Paulson, of the Mayor's Council on Environment showed motion pictures in natural science dealing with ecology.

Even a cursory glance at the foregoing summaries brings home the versatility of biophotographers and the diversity of their activities. Further proof of this and of the ever increasing applications is demonstrated by the following condensed tabulation of the highlights of some of the monthly chapter meetings that followed after the first five years of the era.

This table, and the one on Regional Meetings further on, was detailed "for the record." Of general interest is the lefthand column and the dates, which can be quickly scanned to get an idea of the trend in topics.

The list shows that chapter-wide activities cover all the topics pertaining to biophotography. Yet it does not assure photographers that belonging to one chapter also provides such a broad coverage. It is not easy to single out a representative example because most chapters, over the years, have offered similar benefits to their members. However, the programs of the Southwestern Chapter are probably the most intensive and varied. Also, attendance has been outstanding, ranging from 50 to 125. Accordingly a brief summary of some of the meetings is given here, in order to establish the tenor and continuity of chapter efforts. Most of these meetings were two-day affairs; some, three-day.

1967—The March biannual meeting featured an exhibition of prints, slides and motion pictures. (Such salons were held every year. Not all chapters can mount such events, yet when feasible they are well worth considering.)

1968—The first meeting covered photographic techniques and a television workshop.

1969—Some of the topics that year were cinematography of the fundus oculi, holography, wide-screen micrography, photography for public relations.

1972—Saw the first of a series for continuing education—photomacrography and underwater closeups.

1973—Tutorials on communication theory and practice. Then lettering and graphics; illustrations for publications. Preparation for the RBP exam.

A yearly event has been the Annual Natural Science Photographic Seminar, conducted in the field. The one in 1973 took place in the Texas Hill Country, along the Guadalupe River. Science experts and photographers discussed and demonstrated the photography of insects, plants, birds, reptiles, mammals, fossil beds, and archaeology.

1974—Portraiture; architectural rendering; modular communication systems; critiques of illustrations. Photomicrography workshop.

1975—Photographic techniques during the year covered such subjects as cultures and gels; dental recording; and large animals. The zone system. Lighting methods for patients. Color problems. Techniques for natural science photography.

1976—Bounce-flash lighting; three-screen programs (with six projectors). Information values in illustrations. Telephotography.

The Fifth Annual Natural Science Photographic Seminar featured spelunking and cave photography. It drew regional interest.

## Local Meetings

| Topic  | Chapter       |
|--|---------------|
| 1971—Film, heart transplant  | Michigan      |
| Medical use of laser   | Wisconsin     |
| 1972—Conservation of art   | Ottawa        |
| Color microfiche   | N. California |
| Scanning electron microscope   | Capitol       |
| Film, separation of siamese twins                                    | Boston        |
| 1973—Biological infrared aerial photography                          | Ottawa        |
| 1974—Transilluminated infant skulls by<br>infrared color photography | New York      |
| Fluorescin angiography, fundus                                       | Ottawa        |
| Kinanthropological photog., athletes                                 | Ottawa        |
| Parapsychological photog.  | N. California |
| Laser localization for radiation treatment                           | Blue Grass    |
| 1975—Athletic injuries   | Delaware Val. |
| Thermography, cineradiography  | S. California |
| Restoration of documents   | W. New York   |
| 1977—Self-instruction aids   | Chicago       |
| Pediatric Photography  | Rocky Mtn.    |
| Preflashed slide dupes   | Conn.         |
| 1978—Infectious hazards  | New York      |
| Photog. for marine biology   | San Diego     |
| 1979—Non-verbal communications for the deaf                          | W. New York   |
| Requirements for salon entries                                       | Southwestern  |
| Reproduction methods for radiographs                                 | S. California |
| Three-source photomac. scanning                                      | Midsouth      |
| Veterinary photography   | S. Ohio       |
| 1980—The wild orchids of Arkansas                                    | Midsouth      |
| Nature photography workshop  | S. Ohio       |

Such programs and the BPA cooperation with other photography societies, and biomedical groups, indicate the maturation and recognition we have achieved through the efforts of chapter members. Our status was further bolstered by Regional Meetings and secured by educational projects.

## REGIONAL MEETINGS

Around 1965 a change took place as Regional Meetings became common. The origin and philosophy of such meetings are described among the events of the second era. By 1970 monthly chapter meetings continued, but the local seminars and symposia were largely replaced by regional sessions.

The affairs were organized and promoted by two or more chapters. This avoided conflicts with the dates of the monthly type of gathering. Hosting was usually rotated among the chapters and among the cities in chapter localities. Visitors from chapters outside the region often attended, especially when programs had an educational slant for the benefit of those working toward certification. Exams were sometimes given during the sessions.

The tabulation herewith summarizes an account of Regional Meetings held throughout the third era. It is interesting to note that no significant topical differences existed between regional and local programs—except for greater emphasis on regional hands-on workshops.

The term “diversified” is the best concise description for the topics of the regional meetings listed. To elaborate, an outline of the previous seminar mounted by the Pacific Northwest Chapter in Seattle, 1965, is given here. There was good regional attendance from the US and Canada.

*Optics in photography*

*Exposure and development*

*Infrared Color photography,*

*Photomacrography*

*Bone, specimen, and x-ray photography*

*Hydrocephalic transillumination*

*Artificial and natural lighting*

*Veterinary photography, surgical,  
clinical, field*

*Small object photography*

*Pediatric photography*

*Photography of surgery*

*Legal aspects*

*New ideas clinic*

*Testing macro lenses*

*Photography in fisheries*

*Gross specimen photography*

*Patient photography*

*Natural science photography*

*Oral photography*

*Public relations photography*

*Ophthalmic photography*

Dr. John Luft

Harry Johnson

H. Lou Gibson

Hans Domasch

David Shurtleff, Della

Fry

Norman C. Helmer

Donald Fritts

Joseph Mineo

Ada Cambern

Kenneth Buckley

Joel Rindal

Lois Wright

(moderator)

Prof. F. McWhorter

Morris Southward

Dale Tilly

Jack Newby

Hans Domasch

Clifford Freehe

Jim McKim

D. David McIntyre



Werner Dreher and Yuji Oishi show interest to Ben Summers, host at the founding of the Rocky Mountain Chapter.

Local and Regional Meetings began to take on a more tutorial tone after 1965. Many specifically educational sessions were arranged. For example, the 1968 Photography Workshop, centered on the Berkeley Campus, (listed in the table of Regional Meetings) included an in-depth course on natural science photography in the field. It was conducted by Alfred Blaker, head of the Scientific Photographic Laboratory of the University of California at Berkeley.

Formal and informal educational projects are recounted in the next section.

## EDUCATIONAL MEASURES

Intensive educational programs were carried out by the Association, the Chapters, and by various institutions, with a modicum of BPA input. A milestone in the study of education as it relates to communication in the USA was the Allied Health Services Project at UCLA. It was supported with a grant from the US Office of Education. The curricula, physical needs, textbook production and selection, and personnel for 28 allied health sciences, were studied. To cover the field of biomedical photography a committee and advisory panel were constituted. Nine BPA members were included.

Thus BPA educational programs did not become narrowly elitist, because members associated with all the activities just listed had access to many deliberations from outside BPA. Our background enabled us to contribute ideas. Our contacts enabled us to receive ideas.

### Association Efforts

The educational aspects of our Annual Meetings already have been outlined. Of course, there also had to be general programs at these affairs. The Association promoted specific educational projects distinct from the workshops and certification and refresher courses given at those meetings.

Besides courses organized by the chapters and individuals, new types of instructional sessions were investigated by BPA, and later

## Regional Meetings

| Topics and Type                         | Chapter, Region, City      |                               |                                    |
|---|----------------------------|-------------------------------|------------------------------------|
| 1965—Biophotography, Lectures           | Pacific N.W., Seattle      | 1972—Diversified lectures     | Western, Las Vegas                 |
| Photomic. workshop, lectures            | Western, Palo Alto         | Underwater photog.            | Southwest, Galveston               |
| Photog. in Science, sympos.             | St. Lawrence V., Ottawa    | Photomacrography, workshop    | Southwest, San Antonio             |
| Photomicrography, workshop              | Southwest, Temple, TX      | 1973—Transactional analysis   | *Western, Asilomar                 |
| 1966—Techniques, applications, lectures | Northeast, Kingston, Ont.  | Department management         | Western, Long Beach                |
| General seminar, lectures               | Western Pa. Pittsburgh     | Exhibit building              | Prairie, Upper Midwest, Des Moines |
| Scientific photog., seminar             | Western, San Francisco     | Photomicrography, workshop    | Southwest, Galveston               |
| Basic techniques, seminar               | Northeast, Farmingdale, NY | Professional education        | Ottawa, Ottawa                     |
| New products, sympos.                   | N. California, Palo Alto   | 1975—Efficient practices      | *Western, Asilomar                 |
| 1967—Basic medical workshops            | Northeast, Albany          | Communication philosophy      | Ottawa, Kingston                   |
| Cinematography, sympos.                 | Pacific N.W., Seattle      | Professionalism               | Upper Midwest, Amana Colonies      |
| Photomicrography, sympos.               | Capitol, Washington        | Basic techniques, lectures    | Pacific N.W., Seattle              |
| 1968—Fluorescence photog.               | Ottawa, Ottawa             | Diverse lectures              | Chesapeake, Capitol, Arlington     |
| Communications                          | Eastern, Philadelphia      | Three-screen presentations    | Southwest, San Antonio             |
| Closeups in the field                   | N. California, Berkeley    | 1976—Art for medical sciences | West Virginia, Morgantown          |
| General, lectures                       | Southwest, Houston         | 1977—Diversified lectures     | New York, New Haven                |
| Diversified lectures                    | Arizona-N. Mexico, Tucson  | Cooperation, education teams  | *Western, Asilomar                 |
| 1969—Holography                         | Southwest, Galveston       | Basic workshops               | Northeast, New Haven               |
| 1970—Diversified lectures               | Western, Los Angeles       | Close-up photog.              | Midsouth, Little Rock              |
| Basic medical workshops                 | Midwest, Chicago           | Basic workshops               | Southeast, Augusta                 |
| Medico-legal photog.                    | Midsouth, New Orleans      | 1978—Communication techniques | *Western, Annenberg (L.A.)         |
| 1971—Audio-visual media                 | *Western, Asilomar, CA     | Dental photog.                | Prairie, Kansas City               |
| Basic workshops                         | Northeastern, New York     | Management seminar            | Western Pennsylvania, Hershey      |
|   |                            | 1979—Effective photo aids     | *Western, Asilomar                 |
|   |                            | Management seminar            | Florida, Miami                     |
|   |                            | 1980—Techniques, Applications | Midwest, St. Louis                 |

\* These meetings were characterized by the aims of "Biocommunications West."

by the Committee on Professional Education of the Board of Registry. In 1968 an Annual Biomedical Workshop was arranged through the cooperation of the Rochester Institute of Technology [NY] and with the help of the Eastman Kodak Company and the Western New York Chapter.

The idea grew out of a one-day, open-house visit to RIT in 1968. The 90 studios and 260 darkrooms were studied. In one of the classrooms, discussions were held regarding the incipient two-year course in biomedical photography to be given there. In 1970 and 1971 two-day conferences were started. They were so useful that in 1972, and in successive years, a five-day course was arranged. Then, it was practical to place greater emphasis on workshops in which participants produced photographs by the techniques demonstrated. These sessions were later called Workshop East, and the 11th was mounted in 1980.

In 1971 John Vetter took charge of the arrangements for

registration and Association-wide publicity. By 1977 Martin L. Scott became co-director. Both served also as instructors. John F. Trauger, and later, Nile Root, of the Rochester Institute of Technology, looked after the details there. Vetter was appointed Chairman of the Committee on Professional Education in 1976 and Scott the Vice-chairman—to become Chairman in 1979.

Another school of photography hosted a similar five-day course in 1977—the Brooks Institute of Photography in Santa Barbara. It was coordinated by Stephen R. Sampley of Rancho Los Amigos Hospital, Downey, California, by Ernest Brooks, President of the Institute, by Carol Asimow, of Cedars-Sinai Medical Center, Los Angeles, and by Paul Miller. Brooks faculty members and several BPA lecturers conducted the program. This activity continued and became Workshop West in 1980.

In 1979 a Western Regional Meeting, Bio-West '79 was held in the Asilomar Conference Center on the Monterey Peninsula; this



was a course arranged by the San Jose State University Instructional Resources Center. Over 50 members of BPA, AMI, and HeSCA participated. The Program Committee was Richard Ray, Will Renner, Thomas Masterson, Richard Kulmann, (for BPA); Laurel Schaubert, (for AMI); and Thomas Banks, (for HeSCA).

A prime topic, an advanced management seminar was promoted by Will Renner. This phase of biophotography had become important because of the increasing size and complexity of illustration services. An informal exploration of the subject earlier in the year had been undertaken at the 1979 Annual Meeting. Paul Newman moderated a panel discussion of the topic. The matter had not been neglected by BPA; it had become more urgent and involved than formerly. In 1969 Robert R. Armstrong, of the St. Joseph Hospital, Medical Center in Burbank, wrote a Journal paper on the subject, and lectured on it at the 1972 Western Regional Meeting in Las Vegas. Renner continued to conduct the management work-sessions—in 1977 and at RIT in 1978. An intensive, three-day management course preceded the 1979 Annual Meeting. In 1978, the Southern California Chapter mounted a similar workshop at the Annenberg School of Communication in Los Angeles. The purpose was to demonstrate how computer technology could aid communication and management operations. Some members of AMI and HeSCA attended. COPE (BPA's Committee on Professional Education) conducted its 2nd management program in 1980 in Durham, North Carolina.

Members were encouraged, through BPA notices, to attend special regional demonstrations and short courses put on by the Kodak organization, Calvin Productions, Hasselblad dealers, Polaroid Corporation, Log E-Tronics Corporation, Douglass Sickle Workshops, Technifax, and Braun North American, to name the major supporters of the type of programs in which BPA was interested, in order to keep members current on equipment.

Before going into detail about the informal and formal courses arranged on a chapter level, some of the BPA lecturers at large ought to be mentioned. They have given tutorial addresses to medical, biological, and scientific groups outside the BPA orbit.

Ralph Creer promoted our interest in biocinematography here and abroad. Stanley Klosevych conducted in-depth photomicrographic seminars all across Canada and in Europe. Robert F. Smith, now at Cornell University, New York State College of Veterinary Medicine, lectured on advanced photomicrography in Germany and Switzerland. In 1967, Lew Koster conducted a two-day seminar on photomicrography in Washington. Stephen Dittmann drew attention to our interest in television to many groups in the early years of the third era. In 1968, three BPA members addressed the 15th Annual Seminar of the Professional Photographers of Canada in Ottawa. This was the first time PPOC included scientific photography in their seminars.

That the BPA educational programs have enhanced the value and prestige of certification was evidenced in 1978 with recognition by the Program on Noncollegiate Sponsored Instruction of New York State. This influential project arose from the untiring efforts of David Gray while he was Secretary of the Board of Registry. Working with Dr. John J. McGarraghy, Director of the program, were Martin Scott, Robert F. Smith, and Professor Richard D. Zakia, of RIT. They equated the completion of the RBP program for the Registry to 40 hours of college credit at the associate level. Colleges and Universities listed in the "Guide to Educational Programs in Noncollegiate Organizations" were advised of the move. Those wishing to investigate this benefit further can find the information in the October 1978 issue of the BPA Journal, or write to the Executive Secretary of the Board of Registry.



John Vetter makes a point at the RBP refresher course that preceded the 1977 Annual Meeting.

Credit for attending some of our workshops can be obtained from other sources. For example, the two-day management seminar listed for Hershey in 1978 merited 10 hours of Category I Credit toward the AMA Physicians' Recognition Award and one hour of continuing education unit from the Pennsylvania State University program.

These informal courses demonstrate that BPA has fulfilled the obligations it assumed upon inaugurating the Registry. The chapters too, met the challenge energetically. When the saturation of would be students in a given region was reduced—making a potential local class too small—Association programs tendered further opportunities, as described in the previous sections.

The next phase of our educational efforts involve the more formal, specific, short, and often repeated courses conducted locally by the chapters and by individual members. These and the programs of academic and professional institutions are examined next.

### Chapter Courses

At the beginning of the third era Percy Brooks was appointed coordinator for advising Association and Chapter officers on topics and procedures for educational projects. The experience the New York Chapter had gained from conducting courses for working biophotographers served as a guide. He organized workshops for the weeks prior to the 1966 through 1970 Annual Meetings. The New York Chapter started in 1966 with 12, two-and-one-half-hour, weekly sessions on basic subjects. Funding was done by the students and the Chapter—before such help was initiated by our Association. The first programs were given by the following members:

Patient Photography, by David Lubin  
 Photomicrography and Photomacrography, by Lewis Koster  
 Photography of Small Objects, by Sidney Shapiro  
 Reproduction of Research Records, by Percy Brooks

In 1967 courses in medical Motion Pictures, Illustrating Scientific Papers, Orientation in Bioscience, and Graphic Arts Techniques were introduced. Then came courses in photography for biology, zoology, and botany. Sessions ran from 10 to 16 weeks. In 1971 Vetter arranged to move operations to RIT in Rochester, NY.

Starting with spontaneous workshops in 1965, the Boston Chapter advanced to more formal presentations. Marshall Stokes



Microscope workshop at the 1977 "Biomedical Photography-East", held at the Rochester Institute of Technology.



Dr. Elizabeth Arthur demonstrates the visualization of human anatomy during the annual refresher course at Rochester Institute of Technology.

was on the Board of Governors in 1967 and carried the message back to Boston. He instituted a structured refresher course specifically designed for aspirants to the Registry. In 1969 a more elaborate, regional, course along the lines of the Association's efforts was given. Students met once a month at the VA Hospital there. Instruction ran for three years and graduated six students.

In 1966 the Lake Ontario chapter initiated training in clinical photography, photomicrography, and cinematography. Marc Giguère, Hôpital Laval, in Ste-Foy, Québec, was encouraged by the Montreal chapter to conduct a course in photography, anatomy, and hospital procedures.

By 1967 the Northern California chapter had coordinated, under Will Renner, sessions in photomicrography and photographing laboratory apparatus. They also dealt with print quality. One of the concerns of the Registry examiners had been the slipping quality of black-and-white prints in portfolios submitted for the practical exam. This was usually traceable to a reduced demand for black-and-white photographs and to preoccupation with mastering color techniques. The courses comprised four, two-hour lecture sessions and a four-hour workshop final exam. In 1972 Renner,



Catherine Boris, Paul Miller, and Chuck Griner discuss print quality at "First Annual Workshop-West", 1977, Santa Barbara.

Ehrlich, and Ray took on the tutoring of several aspirants in our certification program.

#### Institutional Courses

Many courses were conducted in hospitals and academic institutions. BPA members usually taught the subjects. The sessions can be classified as short-term, apprenticeship, and long-term curricula.

In 1967 Hans Dommasch planned and headed a three-week course at the University of Saskatchewan in Saskatoon. The topic was "Photography for Education and Research in the Medical and Biological Sciences".

Krishen Acharia started instruction for the Institute of Biophotography newly established in Patiala, in 1967, by the Indian Government there.

Howard Tribe, then of UCLA with I. Lloyd Matlovsky, of Los Angeles County, USC Medical Center, were consultants for the University of California Extension at Irvine. The occasion was a 1972 weekend devoted to field techniques for photographing life in tide pools. Tribe, Matlovsky, Maurice Le Cover, and Lynn Jones then began an ongoing course of three semesters per year. It dealt with biological photographic techniques. The program was sponsored by the University's Extension Service and the Southern California Chapter.

Paul Showstark, of Beth Israel Hospital, Boston, started an apprenticeship program in 1972. His four-man staff served the Hospital's illustration needs and accommodated eight students. There were no formal classroom sessions; technical discussions and working experience constituted the training. The two-year course led to a certificate approved by the Massachusetts Department of Education and by the Veterans Administration.

When he retired in 1974, John T. Stringer, Director, U.S. Naval School of Medical Photography, reported that he had supervised the training of over 360 hospital corpsmen in medical photographic techniques.

In 1978 Charles Engel, then Associate Professor and Director of the Division of Medical Education, University of Newcastle, in Australia; formerly Director, Department of Audiovisual Communication of the British Medical Association in London, announced that the Kellogg Foundation of the USA had granted funds



Stanley Klosevych points out the qualities of a good photomicrographic negative during a course he gave at the Memorial University of Newfoundland.

for a five-year program to implement a study of means for advancing methods of visual education.

BPA members have acted as instructors for the Winona School of Professional Photography. Robert Albertin, of the Medical College of Wisconsin, served as liaison. Don Wong gave a six-hour course to the Ophthalmic Photographers Society in Dallas. He covered external, fundus, slit-lamp, and fluorescence techniques.

In 1969 Antol H. Herskovitz, then of the National Medical Audiovisual Center in Atlanta, received a Master of Medical Science degree in biomedical communications from Tulane University, which had participated in the Center's program. This was a landmark event, because the interests of academic institutions in such curricula was barely stirring in the early sixties. Later on the National Library of Medicine underwrote a postgraduate course in communications that was instituted in several universities. Stephen Dittmann, as Assistant Professor in educational technology at the University of South Carolina, was thus associated, in 1973, with three elective courses for medical students. Jack P. De Bruin was appointed instructor in the Department of Medical Communications, University of Health Sciences, Chicago Medical School. His classes began in 1974. They were designed for medical students and residents.

In 1976 the Department of Continuing Education at UCLA inaugurated "Advanced Photography in the Biosciences". The program was aimed in part at preparing students for the RBP exams. Howard Tribe, Lloyd Matlovsky, Andrew J. Gero, of Los Angeles County, USC, Medical Center, and Stephen Sampley were the instructors. There is still a long waiting list for this course.

In 1977 Howard Tribe and Phillip P. Bleicher, at the UCLA Medical Center taught a course in photographing wild flowers and plants in research plots and botanical gardens for the Extension Service. Similar instruction was given at RIT in that year by Alfred Blaker. The sessions were sponsored by the College of Continuing Education of RIT. They covered field photography for those in-



Warren Criss, Chairman of the Biomedical Photography Program, Bellevue Community College, discusses flash exposures in photomacrography with student. (Photo by Jan Gould)

involved in conservation, forestry, land management, and the natural sciences. The University of Ottawa included a graduate course in photomicrography, taught by Stanley Klosevych.

A course designed specifically for adults having physical or learning difficulties was conducted by the Arizona Academy of Media in 1976. Thomas Uithoven directed the program. This is an active, State-approved, program that serves a group of citizens that is receiving more and more attention.

In awareness of the needs, but independently of BPA, other university curricula in general and biomedical photography were established. In 1974 the University of Nebraska started a post-baccalaureate program for students in journalism, education, medicine, library science, communications, nursing, and the sciences. The University had provided eight, one-year internships in the biomedical phases in 1971. A course for medical students in the Southern Illinois University became available in 1977. Five modules were formed: black-and-white photography, photomicrography and photomacrography, clinical photography, surgical photography, and copying.

The Technology Department of the State University at Farmingdale New York provided scientific photographic courses for students at the AAS level. By 1971 there were 70 participants in the program.

A two-year college course in photography specifically for biophotographers was started in 1973 with 12 students by Joseph E. Mineo at Bellevue College in Seattle. The class and laboratory work was followed by internship at the VA Hospital there, under the direction of Dale Tilly. Several classes were graduated by 1977. This program became a leading academic and practical factor in biophotographic education. This highly successful course is being continued under the full time direction of Warren Criss. Additional hospitals now provide internships.

In 1966 l' Hôpital Laval formalized its course in medical photography with the approval of the Ministère de la Santé de la Province de Québec. L'École de Photographie Médicale was then inaugurated. This school offered a comprehensive course of 18 months that covered all phases of medical photography. Study had to be preceded by two years of experience in the general photo-



Marc Giguère with one of his classes in medical photography. These were part of the educational program of l'Hôpital Laval in Ste-Foy, Québec.

graphic field, or alternatively, by a basic 12-month course that was conducted by Laval. The program was carried on for four sessions.

A noteworthy program in general and specialized photographic techniques continues at the prestigious Brooks Institute of Photography in Santa Barbara, California. Its broad curriculum has prepared many BPA members for entering the field of biophotography.

A unique residency was begun in 1978 by the University of Texas Medical Branch in Galveston. The project was aimed at training photographers to become proficient in biomedical photography, especially for documenting pathology. Prerequisites were an associate degree in photography. Forty hours a week in laboratories were supervised by 16 resident faculty members and 18 visiting instructors. Yearly exams were planned for taking at the BPA Annual Meetings so that participants could meet RBP qualifications. In 1980 the University's Health Center at Dallas conducted a symposium on medical photography presented by the Department of Pathology.

For several years, Peter Ide, of the Department of Medical Photography, Medical College of Georgia, has continued the sessions on photography for students in the medical art course of the Division of Health Communications of that college. He developed plans for a BS/MS program in medical photography. This illustration program was started around 1950 by Professor Orville A. Parkes. Thomas W. Lanier was brought in to acquaint the artists with the fundamentals of photographic applications and techniques.

Even special subjects like photomacrography were covered in many places. For example, in 1979, Douglas Roberts and Michael Abbey incorporated this technique with their course in photomicrography at a UCLA Extension class.

The Germain School of Photography in New York, NY included a course in biomedical photography in 1979. Herbert A. Fishler directed the sessions, which ran two evenings a week for six months. This school, licensed by the New York State Education Department, has been approved for training veterans. Rose Marie



In 1977 Debi Stambaugh, graduate from Brooks Institute, revisits Vernon Miller, Chairman of the Industrial/Scientific Department of the Institute. Debi was then the youngest woman to earn RBP.

Spitaleri was a graduate of their earlier, general program.

All educational programs have not come to our notice. There are doubtless others and there will be a continuing introduction of courses like these representative examples.

No single factor in biophotography spotlights its role and value as sharply as this focus of so many sources of instruction. Without a cognizance of this, it may be difficult for our newer members to appreciate the dedication of our older members in their determined efforts to press for the advances that exist in today's application and proficiency.

#### Rochester Institute of Technology

Since RIT spearheaded the first thrust of BPA's efforts to help in the academic establishment of biophotographic education, a few special notes are not out of place here.

RIT was authorized to conduct courses leading to the Bachelor of Science Degree, in 1953 by New York State Board of Regents. Discussions were held with Dr. C. B. Neblette regarding the inauguration of a college course in biophotography. But this did not become feasible until 1968, when the Institute moved to a large new campus.

In 1967 William C. Schoemaker, who had succeeded Neblette as Director of the School of Photography, consulted local and other BPA members and medical photographers on the aims and progress being made by our Association. He decided to launch a program and appointed John F. Trauger to study curricula and to obtain funds for researching the current opinions of biophotographers regarding the practical aspects of a course that would be acceptable. Trauger obtained a grant from the Department of Health, Education, and Welfare to prepare, circulate, and analyze a questionnaire. This was sent to BPA members in 1967; of 993, 347 responded. (The results were published in the January 1969 issue of the BPA Journal.) The status quo at the time was indicated by the tables he prepared. The one here shows the occupational analysis of the respondents.

| Category                     | Number |      | Certifi-   |        |
|------------------------------|--------|------|------------|--------|
|                              | in     | RBPs | candidates | Others |
| Manager and Supervisor       | 150    | 65   | 12         | 73     |
| Chief or Senior Photographer | 57     | 12   | 11         | 34     |
| Photographer                 | 67     | 13   | 8          | 46     |
| Phototechnician              | 7      | 0    | 1          | 6      |
| Teacher, Dentist, or Doctor  | 43     | 0    | 1          | 42     |
| Other                        | 23     | 2    | 2          | 19     |
| Total                        | 347    | 92   | 35         | 220    |

It can be seen that a high percentage in the supervisory classes were RBP's. But this could have been deceptive to those who did not realize that most of the registrants had been certified through the established experience procedure. Nevertheless, the status figures foreshadowed the trend that was to come as more were qualified for the Registry.

Salaries were also explored. As the next tables indicate, tenure and age—which were taken to mark experience and proficiency—raised the medians on the salary ranges. In 1967 these ranges represented encouraging jumps over the levels of the second era. They should not be equated to 1980 levels, because the 1967 dollar had the buying power of more than two 1980 dollars.

### Median salary for years of service

| Salary range         | Number of years |      |       |       |       |
|----------------------|-----------------|------|-------|-------|-------|
|                      | 0-5             | 5-10 | 10-20 | 20-30 | 30-40 |
| \$10,000 to \$11,999 |                 |      |       |       | *     |
| \$ 8,000 to \$ 9,999 |                 |      | *     | *     |       |
| \$ 6,000 to \$ 7,999 |                 | *    |       |       |       |
| \$ 5,999 and under   | *               |      |       |       |       |

The Relationship of age of all classes of respondents to their salary was as follows:

### Median salary for age group

| Salary range         | Age      |       |       |       |
|----------------------|----------|-------|-------|-------|
|                      | Under 29 | 30-39 | 40-49 | 50-64 |
| \$12,000 to \$13,999 |          |       | *     | *     |
| \$10,000 to \$11,999 |          | *     |       |       |
| \$ 8,000 to \$ 9,999 | *        |       |       |       |

Another interesting feature was revealed by the tabulation of previous experience. A large number emerged that was associated with newcomers to biophotography. The table below shows that 23

percent were inexperienced in the field. This fortified the resolve of all who were engaged in furthering biophotographic educational programs.

Employment in biophotography previous to the then present employment in field is shown at the bottom of the page.

It was also found, from a question dealing with the number of photographers the respondents expected to hire over the succeeding five years, that a projected call for 391 new personnel was indicated. Illustration services were already becoming a burden to overworked photographers. Forty one percent (146) were training 298 apprentices in their departments. Some had as many as four.

A disappointing finding was that, at that time, a high academic educational level could not be related to a high salary, albeit some augmentation was general for those who had gone beyond high school. Nevertheless, it was becoming evident that technical and applicational advances were in the wind. Well-trained newcomers were going to be needed and those already working in the field were going to necessarily update their skills. RIT could well furnish the first; BPA, the second.

Upon reaching these conclusions, a second grant was obtained in 1968 to establish a biomedical photographic curriculum for a two-year, AAS, course. Trauger, with the help of local BPA members, laid out a course of study based upon liberal arts and general photographic courses then extant; to which were added biomedical subjects on the technical and scientific phases. In the Spring of 1969 Trauger discussed proposals with BPA members—such as Howard Tribe, Will Renner, and Donald Fritts—in Los Angeles. The RIT program was studied and deemed to agree closely with the requirements felt necessary by the BPA Committee on Professional Education (COPE).

Professor Robert R. Sponholz, of the University of Wisconsin Primate Laboratory, was brought in to cover the biomedical phases of the curriculum. Nicholas Graver taught a survey course in biophotography during the first four years. Sixteen students were enrolled in the Autumn of 1969.

In addition to class and laboratory work at the Institute, a one quarter term of internship in medical or biological establishments was required. Here, BPA members were eminently cooperative in arranging positions. Internship proved most valuable and also stimulated enthusiasm for the subsequent scholastic phases. Several BPA members have also helped by serving as guest lecturers at RIT during the academic sessions. Bruce Grant, of the Medical College of Pennsylvania, joined the permanent staff in 1978. Leon LeBeau and Martin Scott have recently done this on a regular basis as adjunct faculty.

The program continues today, but with modifications necessary for melding it with the requirements for the four-year baccalaureate course that came later. The following table gives particulars about the first five classes.

| Respondents                                |              |          |                |            |
|--|--------------|----------|----------------|------------|
| Previous employment                        | Total for    | RBPs (%) | Certification  | Others (%) |
|  | category (%) |          | candidates (%) |            |
| Hospital                                   | 59           | 76       | 70             | 51         |
| Government agency and armed forces         | 5            | 2        | 4              | 6          |
| Industry                                   | 13           | 12       | 11             | 14         |
| Without previous biophotography experience | 23           | 10       | 15             | 29         |

### RIT Biomedical AAS Program—1974

| Entrants                     | 1969  | 1970  | 1971  | 1972  | 1973  |
|------------------------------|-------|-------|-------|-------|-------|
| Students                     | 16    | 24    | 25    | 24    | 26    |
| Female                       | 3     | 5     | 7     | 9     | 10    |
| Male                         | 13    | 19    | 18    | 15    | 16    |
| Age range                    | 19-38 | 18-53 | 18-36 | 18-36 | 18-35 |
| Median age                   | 23    | 20    | 20    | 21    | 20    |
| Married                      | 2     | 4     | 3     | 3     | 1     |
| Veterans                     | 4     | 4     | 5     | 2     | 1     |
| Education beyond high school | 7     | 5     | 14    | 15    | 10    |

Additional data revealed that several students having experience in other fields had planned to change their occupation to biomedical photography. Yet in general, the students were young people making a start toward a career in the field.

John Trauger became a familiar figure on the BPA scene. He was elected Director in 1972 with duties in BPA course coordination. He gave the keynote address to the Annual Meeting in 1971. In it he outlined the RIT project and supported BPA's philosophy and approaches regarding biophotographic education.

#### A Baccalaureate Program

With the two-year course well established, RIT began to investigate a four-year program. It was becoming evident that the growing complexity of illustration techniques and the improved status of the illustrators necessitated and warranted the provision of high educational opportunities.

In 1971 Trauger formed a committee with Brunings, Gibson, Graver, Hurtgen; Robert Geertsma, Paul Grover, and Robert Wabnitz, of the University of Rochester; and Stephen Barley, of the Eastman Kodak Company. After two years of work, a course was ready, and it was inaugurated in 1973.

Trauger was made Instructional Resources Coordinator for RIT in 1975. Nile Root succeeded him as head of the Biomedical Photographic Program.

Root had joined the faculty in 1972. He was charged with making the course adjustments required for enabling two-year graduates to enter the third and fourth years of the BS program. This was necessary because entrance requirements for the two-year course had not had to be as high as those to be asked for the four-year course.

Root was obliged to set up new requirements for students who entered the full program in order to prepare them for the advanced work. The same requirements were asked of two-year students in the eventuality of their changing to the fuller program. In fact they were encouraged to enter RIT with that possibility in mind or with the definite intention of going for four years.

Both programs were well received, as indicated with some figures for 1978. The combined enrollment had stayed around capacity, which was 180. Graduating in 1978 were 27 AAS and 19 BS students. Up to that year, 189 two-year and 19 four year alumni had completed the courses. For the 1977-1978 period the internship program was implemented by the cooperation of 25 biomedical institutions.

RIT graduates are already prominent members of BPA and of the biophotographic community. Twenty-five of them were found to be heads or supervisors of departments by 1978. Their lectures

at Annual Meetings and their Salon entries have been of high professional quality.

The need for continuing educational programs in biophotography can be appreciated from two factors. The increasing demand for biophotography and the fact that more and more pioneers in the field are reaching retirement age, both create opportunities for well-trained biophotographers.

### TECHNICAL ADVANCES

The past few years have witnessed a surge in scientific and technical innovations that have presented new challenges in the procedures and uses of biomedical photography. Photographic technology and equipment have kept pace. Some of the salient contributions by BPA members, their colleagues, and others, which have affected the course of illustration services and augmented educational media are outlined here. Progress in cinematography is discussed in relationship to television advances.

The topics listed for meetings offer an insight into the changes that took place. Further important factors that affected the tenor of biomedical photography are presented in the section dealing with the Journal. A general overview of the basic progress made in techniques and equipment is outlined here.

#### New Influences

Holography, scintillation scanning, electronic imagery, computer reconstitution of stored images, computer enhancement of radiographs, and color xerography opened up new applications. Advances in cryogenic surgery, fluorescein angiography, space exploration, and nuclear medicine broadened new vistas.

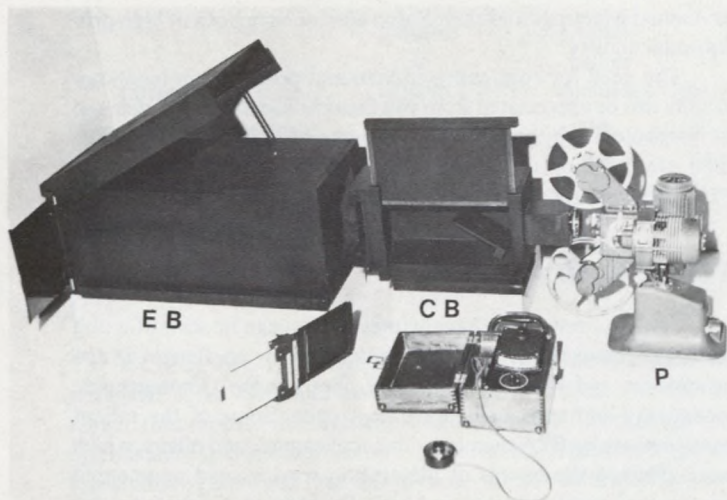
Camera design, apart from some refinement in automatic exposure control, did not change fundamentally, but a gamut of improved general, macro, and zoom lenses for 120 and 35mm cameras emerged. Modulation optics for phase contrast photomicrography eliminated the former halo. A television interface was introduced that made the video recording of microscopic images easier and quicker. Advances in automatic photomicroscopes made routine photomicrography simpler, leaving more time for exacting work with elaborated, previously conventional microscopes.

Improvements in fibre optics fostered improved endoscopy and led to small-area light sources for photomicrography. A new stomach camera was introduced. The scanning electron microscope, though expensive and complex, revolutionized high-power photomicrography by bringing amazing depth of detail to the images. Underwater photography was made more practical and better by specialized camera housings and lighting units.

Microfiche methods gained impetus by 1969. Self-contained table top viewers, for use in carrels and in other locations where projection facilities would not be expedient, became popular.

Probably the most generally consequential change was the introduction of equipment and resin-coated paper for rapid processing of prints. These units quickly followed the widespread adaptation of automated machines for the in-house processing of black-and-white and color films. Similar factors were the increasing use of progressive slide duplicators and enlargers with color heads. Automated slide mounting saved much time. The potential productivity of departments increased manyfold, because such facilities made possible rapid production of large quantities of work.

The methods and applications of television (to be described further on) expanded greatly in the third era. And this medium, flanked by computer science, has spearheaded the foray of amazing



In addition to using advanced, manufactured equipment, biophotographers often devise arrangements of their own. Jabs and Robb described this setup for making enlargements from cine frames.

techniques for electronic imagery and dissemination of information. The impact upon those engaged in preparing and effecting communication is going to be powerful in our next era.

## ILLUSTRATION SERVICES

As activities in the health and natural sciences grew, much new building took place. In the health field many hospital and school facilities were renamed "Medical Centers." About the same time, photography and art units often merged and became "Illustration Services." Such a change made the production of the large amount of work needed more efficient. Also, the broader philosophy of such associated units could accept the inclusion of television later on.

It was not feasible to centralize operations in all instances. Circumstances of building locations and administrative structure, and factors like research activity and specialization dictated the organization.

The functions of an efficient central service are discussed in the account of our first era. While there still was justification for some autonomous activity in our third era, the benefits of centralization were taken by a large number of illustration directors. There were two aspects in particular that prevalent economic conditions made it imperative to consider—the purchasing and the allocation of equipment and supplies. There had been an increased amount of scientific work supported by grants. Equipment bought for a project was often left to gather dust after completion of the work. Centralized management of equipment avoided such waste. Again, a single purchasing agency could obtain routine equipment, film, video tape, artists' supplies, etc. for the whole institution at great savings.

The other aspect was the efficiency, and often income, accruing from the operation of a centralized, fast-service, photographic processing facility for all the departments and personnel of the institution. This factor is explored in the next section.

### Departmental Evolution

In the early days of BPA, biomedical photographers needed to carry out only a few relatively simple basic techniques. A somewhat ponderous approach to illustration often prevailed, because



Unknown flagellate from the gut of a rare wood-feeding roach *Cryptocercus punctulatus*. (Courtesy Eric Grave.)

there was usually no application for extensions beyond plain presentations. There was little incentive for introducing spectacular innovations, so it must not be construed that early photographers lacked imagination. In general, photography had become a large field, but the use of diverse visual aids was only slowly maturing. It was necessary to demonstrate the potentialities of a photographic department before the methods of photography could be modernized and the values for communication recognized.

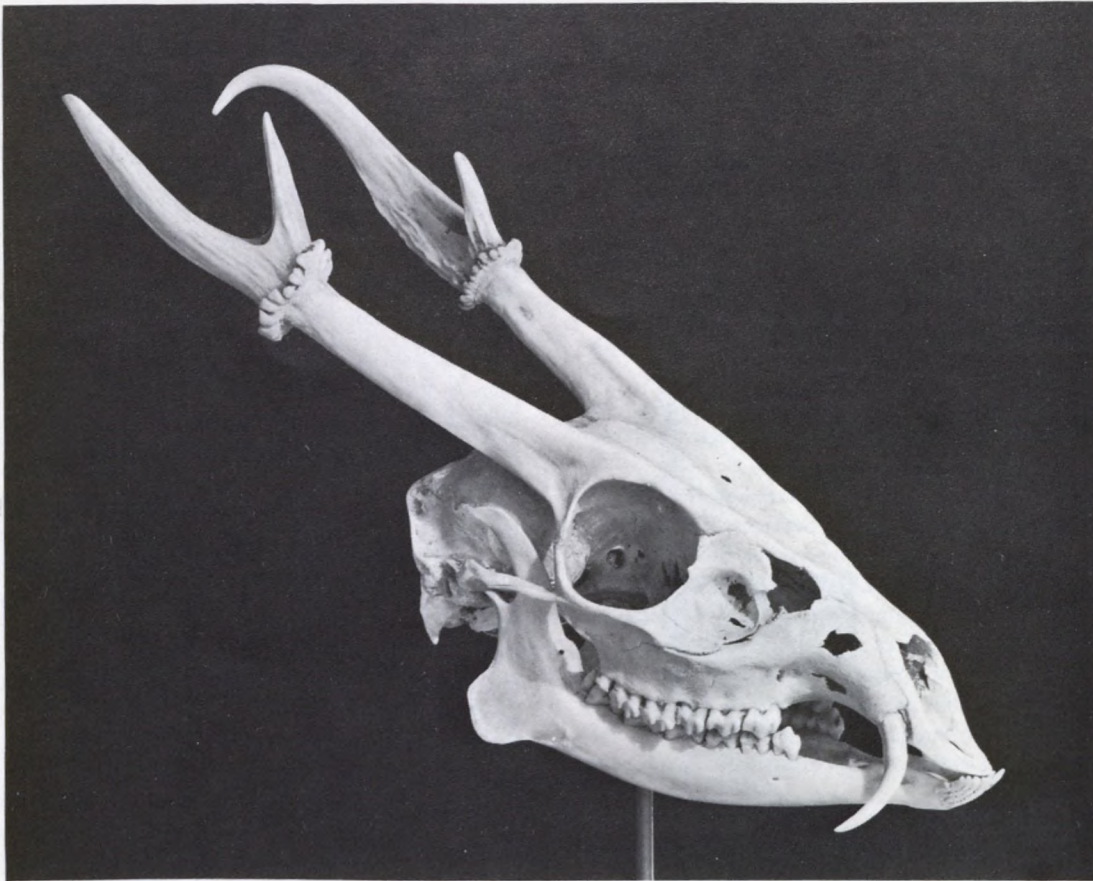
In his survey of 1940 Martinsen discovered, to his and BPA's disappointment, that the median biophotographic department still only comprised 2.3 people. As he contemplated that  $\frac{1}{3}$  man, Martinsen's feelings must have been those of the first dinosaur that hatched a bird!

Yet in 40 subsequent years of BPA evolution, the "birds" have proliferated, outdoing the dinosaurs not only in numbers but also in diversity. Several representative departments today have about 15 members, though an overall average of 5 is likely. Then there are a few larger ones, with staffs numbering over 30, and even 67. Some of these large installations and their production are described further on to illustrate the potentialities of illustration.

But first, in the contemplation of such a magnitude of operation, the value of average or small departments ought not be overlooked. Even the potentiality of an aspiring, new, 2.3 man establishment must be considered. Such a facility was installed in 1978 by Harry J. Przekop at the St. Joseph Hospital in Chicago. A single medical photographer serviced clinical and surgical needs—adopting a beeper system for calls. Units embodying such advances as laser research were also aided. A television operator-producer was the second member of the department. Also, for a third of the time, there was someone to assist in both capacities, to create graphics, and to schedule the use of visual aid equipment. To wit, this was a full-service illustration unit that adequately covered the needs of that particular administration. It is intriguing to note that the department with 67 people, to be described next, was started with one man.

### Large Facilities

The M. D. Anderson Hospital and Tumor Institute, at the Texas Medical Center in Houston, inaugurated a Department of Medical Communications in 1949, two years after the Institute was founded. Robert A. Kolvoord organized the illustration service. By 1979 Lynn Baldwin, who became head of the unit, was able to report on the magnitude to which the department had expanded. Sixty-



Skull and dentition of a muntjac. This small deer from eastern Asia is unusual in that the buck is armed with tusks. Veterinary photography involves research, scientific, laboratory, and field techniques, as well as "patient" records.

seven people coordinated the activities of sections devoted to photography, cinematography, graphics, television, and to an audio-visual library adjunct.

Some representative figures indicated the scope of the work. Around 500 patients per month were photographed, and 1500 clinical and surgical color prints were made. The yearly average production of slides of all kinds was 30,000. The Audio-Visual Library had over 400,000 items.

Patients were photographed in a studio, and in clinics, wards, and operating theatres. Laboratories and special areas were furnished for specimen photography, necropsy, copying radiographs, and photomicrography. There was space to make illustrations for public relations, personnel items, exhibits, brochures, television graphics, and publications such as their "*The Cancer Bulletin*" begun in 1948.

Semiautomatic, continuous processors and high-volume printers speeded up the photographic laboratory production. The finishing service included personal work for the general staff of the Institute. In 1979 \$420,000 was earned in recoverable funds from this and other service charges. An inventory of \$25,000 in films, materials, and chemicals, was maintained. The 1979 budget for the Department was \$950,000.

A Motion Picture/Television Section employed a staff of 21. Four program directors produced about 400 programs a year in color. There were two studios and a remote recording capability. The technicians serviced all the in-house electronic communication systems as well as the television equipment.

There was a full-time director of cinematography. Crews were formed as needed from the television and projection personnel. The films were used for projection and for television transmission. An Oxberry stand provided animation and graphics facilities for both media.

The Institute carried 30 cable channels. Programs were also distributed to local networks, exchanged with state systems, and sold throughout the USA and abroad.

Personnel were encouraged to participate in BPA, and in the activities of other professional photographic and management groups. They also attended continuing education courses and manufacturer's sessions on the maintenance of equipment.

Some idea of the scope, productivity, and benefit of the well-equipped photographic finishing laboratory can be gained from noting the services of another prominent illustration unit. In an interview for *Functional Photography*, November, 1978, Will Renner, Coordinator of the Illustration Services for the **University of California at Davis**, furnished the following details:

"The facility took some long strides toward being more responsive to the needs of its clientele earlier this year with the installation of a Hope Industries Model 132, E-6, roller transport film processor at the Davis campus. It allows illustration Services to routinely offer two-hour, twice a day, service for processing all Kodak E-6 Ektachrome films for process E-6.

"The effects are far-reaching:

—Staff photographers can now have their assignment color slides processed in as little as 46 minutes.



—Slides of experiments can be processed while the setups are still “live”. This allows researchers to verify that they have recorded what they need before disassembling experiments.

—Pathologists can have color photomicrographs processed late in the afternoon for use at grand rounds or tumor boards the next morning.

—Former ‘RUSH’ color slide jobs can now be accomplished with routine effort.

—Surgeons can get a same-day look at pictures taken during a morning surgical procedure.

—Presentations by special guest lecturers can be audiotaped and slides duplicated, processed and verified in little more than a couple of hours.

—Faculty in departments ranging from art to drama often need adjusted ASA film processing for their projects. Such service can now be provided on a responsive basis.

“The ability to meet this need is increasing the campus film processing handled by Illustration Services. This, in turn, is helping to cost-justify automated processing. Since the two-hour processing service was offered, the volume of film handled has doubled compared to the same period during the previous year when Illustration Services was manually processing Kodak Ektachrome films for process E-4.”

Efficient working methods and systematic procedures in his department of 17 made zero-budgeting relatively simple. The delivery of large quantities of work to several departments made such measures necessary.

Different circumstances prevailed at **Johns Hopkins University School of Medicine and Hospital**. The teaching facilities and their associated medical and research divisions were sprawled over many acres in downtown Baltimore. The Division of Audiovisual Services constituted six, semi-autonomous, but closely cooperating departments. Around 1979, about 40 people worked in the Division—depending on how many (10–15) students from the University’s course in medical illustration were attending practical sessions in photography and art. (See also early note on page 40.)

The six units did not compete for work because the photographic subjects of each were specialized. There was some sharing of basic operations. For example, Raymond E. Lund, head of photography for the Department of Pathology, ran an in-house, professional and personal, charge-back, finishing and color processing service. He serviced the other departments and also other hospitals in Baltimore. This was economical and permitted an individual attention to the specialized subject matter that would not be practical for commercial business concerns.

The Biomedical Photography group was headed by Zuhair Kareem. It served mainly the medical institutions of the University, recording mostly patients and surgery. A specialized unit was run by Terry W. George for the Department of Ophthalmology. Techniques such as fundus photography and angiography, laser surgery, slit-lamp recording of iris angiography, eye surgery, and conditions of the external eye supplied a plethora of subject material for his group.

Henri C. Hessels conducted the recording of images in the Department of Radiology and Radiological Sciences. The work extended beyond the time-honored copying of radiographs—ultrasonography, axial tomography, Log E-tronic scanning, and various traces from oncology and nuclear medicine provided diversity and challenge.

Dale Roth Levitz became head of the Motion Picture and Television production when Lindsey Burch was appointed Associate

Director of the Division of Audiovisual Services. Dale’s section constituted a complete production unit for completing these illustration services. The work ranged from routine productions, to computer generated sequences for local, national, and global use.

The evolution and association of such large, long-established departments ran a fairly typical course. A brief description of the facilities at **Baylor College of Medicine** provides insight in this respect extending back to 1927. In that year Lewis Waters was appointed director of medical art at Baylor University College of Medicine in Dallas. When the University moved to Houston in 1943, he stayed in Dallas to establish the Department of Medical Art at Southwestern Medical School.

In Houston, F. C. Breckenridge, a photographer, was appointed director of the newly formed Department of Visual Education. He inaugurated an illustration service. Ella May Schakelford joined him as artist (and later, as spouse). The department grew. R. D. MacIntyre then took over the service, following other BPA members, Ronald Christopher and Richard Matthias.

In 1964 Herbert R. Smith was appointed Director of Medical Communications in the Department of Surgery chaired by Dr. Michael E. DeBakey. Then, in 1969, the present Baylor unit was formed from the departments of Smith and MacIntyre, with the first as Chief. This reorganization coincided with the separation of the medical school from the University to become the private, non-profit corporation renamed Baylor College of Medicine.

Such a change and growth was accompanied by the usual need for increased facilities for biocommunication. The College now has seven affiliated teaching units. Four of them supplement Baylor’s illustration needs from their own photographic departments.

Today Smith employs 39 full-time and three part-time people. The still photography unit, directed by Thomas A. Mewbourn, generates about half of the facility’s total income. Also, in Baylor’s Learning Resources Center, Smith directs two people on his staff and 12 part-time medical students.

Among the directors of photographic units in the affiliated institutions there are William R. Pittman in the Methodist Hospital and Leonard Hart in the VA Medical Center, the second being long active in BPA affairs.

### Specialized Projects

All departments in various institutions deal with the fundamental uses of biomedical photography. Special applications are often carried out, depending on the nature of the establishment.

In the sixties, the Child Development Center at the University of Tennessee in Memphis inaugurated a somatic and clinical photographic survey of entering patients and of healthy groups of children for study. Several standard and some specific views for anomalies and clinical manifestations were made. Torleif Gjersvik implemented the early work. The pictures were distributed to the staffs in 16 disciplines.

When hundreds of children were being studied over a period of time, it was difficult to associate written and computerized data with the actual subjects. During follow-up examinations, to review a set of photographs was almost like re-examining the child by going back in time. Children were recalled and rephotographed when necessary. The efficiency of such a system is manifest.

After several years the research was curtailed and no further documentation for the project was undertaken. Nevertheless, the fundamental approach of such a program remained valid.

Similar procedures continued to be carried out in other institutions in varying degrees. For example, the project was closely

paralleled in the seventies by Jerry Luther at St. Jude Children's Research Hospital in Memphis. Routine AP and lateral photographs of all patients were made upon admission, and each year afterwards. Any anomalies present were also recorded. The photographs were kept in the patients' medical folder. Thus the clinical conditions and physical habitus could be studied. The photographs furnished a valuable reservoir of teaching material as well as serving immediate needs. The full-length records were intended for recording physique as a reference, not for a detailed constitutional study *per se*.

The illustration service photographed about 2,500 patients per year, making an average of 6,250 routine records such as those shown in the illustration. To these were added numerous special clinical progress illustrations and graphic, basic science slides and prints. Ten people in the department serviced a professional staff of 162.

For many years, Nicholas Graver supervised the serial documentation of the onset and progress of scoliosis for the University of Rochester School of Medicine and Dentistry. Alfred Benjamin has applied infrared color photography and liquid crystal delineation to the study of hemophiliacs. Leland M. Bowerman, of the West Virginia Medical Center in Morgantown, worked on the preparation of slide-tape presentations in 1978. These "canned" programs dealt with pediatric cardiology. They were distributed by a publishing house to aid busy physicians in outlying districts who did not have the opportunity to attend professional seminars in large urban centers.

The medical field was not the only one utilizing extensive illustration services. Back in 1966 when Gordon H. Parker (along with Dr. James D. Hurley) helped to found our Ottawa Chapter, he was head of the burgeoning bio-Graphic Unit of the Canada Department of Agriculture. By 1972 this had become the largest facility for biological photography and art in Canada.

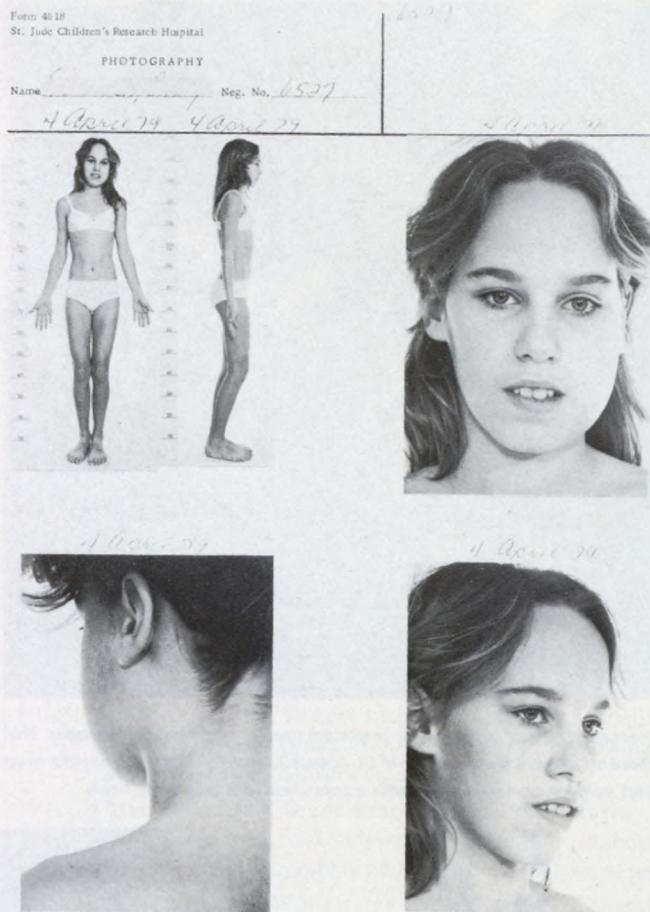
Lucien St. Laurent spent 34 years there and was prominent in enlarging the department to 30 people. In 1972 he made a change when he received the appointment of Chief of the Department of Medical Communications at the Ottawa General Hospital. At retirement age in 1979 he was retained so that his experience could be called upon for supervising the transfer of his unit to an enlarged, newly built facility for the Hospital—the Ottawa Health Science Center. After all, the basic expertise of bioillustration is common to each field of application. Of course, the actual technical operations vary with the field.

In 1979 Ross Jackson furnished data for this history. As head of a department of 17, for the Research Branch of Agriculture Canada in Ottawa, he was responsible for bringing advanced techniques to their crop studies. Crop-loss methodology and plant disease survey techniques involved aerial photography. Infrared color photography was widely used. Remote sensing devices for electronic imagery were often adopted. The techniques of computer reconstitution and enhancement were followed. BPA members were introduced to these exotic methods through his comprehensive, beautifully illustrated tutorials in the Journal.

## PERSONNEL FACTORS

In spite of the growth in size of many departments by the end of the third era, a mass-production syndrome had not become an overly disturbing factor. Nevertheless, there was some awareness and concern in this regard.

Illustration services were under pressure to get out large



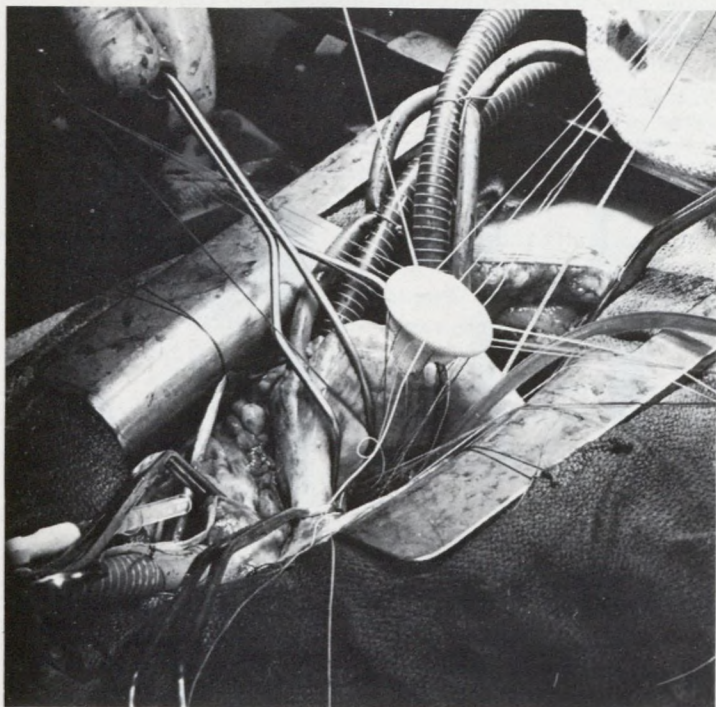
At St. Jude Children's Research Hospital, annual photographs of physique and the progress in the treatment of patients were included in the folders, such as this record of a girl with a desmold tumor of the naso-pharynx. (Courtesy of Jerry Luther.)

quantities of routine work. Some image quality had to be sacrificed in the interest of fast delivery. Pride of workmanship and professional satisfaction were based on "how soon can it be done", not "how good can it be made." Of course, the records had to impart the necessary information. Yet there was generally no time for injecting certain esthetic qualities, that could have made the messages even clearer. Usually, illustrations for books and exhibitions did receive special attention.

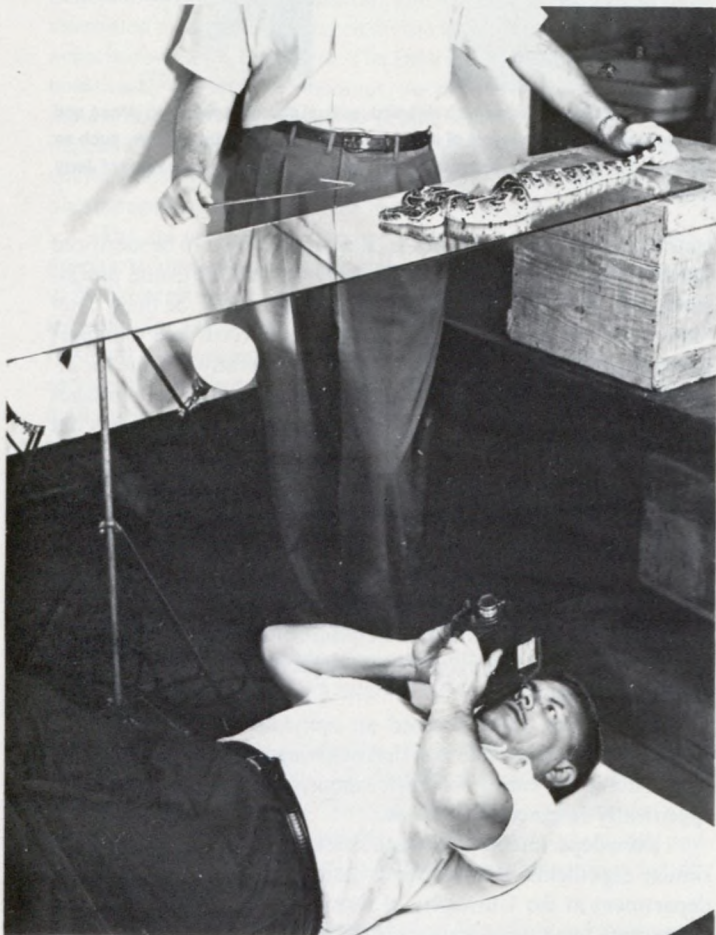
Sensitive management of personnel was required to avoid monotony and drudgery. For example, in Lynn Baldwin's huge unit specialization in some exacting tasks and diversity in general activities were encouraged. The biggest single factor for upholding morale and precluding impersonal passivity there was that of mandating personal contact and consultation between the photographic and other technicians and the recipients of the work that they were doing.

A measure that increased an individual's importance and avoided many arguments was that of giving the photographers the responsibility of caring for basic camera and lighting equipment specifically assigned to each one.

Even departments of average size were faced with the need for similar expedients. Ken Michaels maintained good rapport in his department at the University of Arkansas for Medical Sciences. There were two salient features of his management. A weekly staff conference of all members of the illustration service stimulated discussions of the week's accomplishments and problems. These



Cinematography of surgery is an important phase of medical photography. This record by Richard Massey, then of St. Joseph's Hospital, Burbank, depicts open heart surgery, and was made with a zoom lens and electronic flash.



All biophotography employs cinematographic techniques. Here Sam Dunton films the locomotion of a snake.

sessions unified the endeavors of the group. In addition, personnel were encouraged to produce work of high quality for unhurried participation in local, regional, and Association salons.

John Vetter worked out a way to preclude monotony and to diversify the skills of the members in his unit. His assistants and students were formed into groups that were assigned stints of four weeks at a time. Basic activities such as clinical photography, photomicrography, specimen photography, cinematography, copying, printing, and public relations photography were rotated among them. This scheme was particularly valuable for the apprentices in his department.

It is clear that teamwork is required in large departments. Yet, as pointed out in the 1979 *Bio Bugle*, it is vital to avoid the dog-team effect, in which only the lead dog gets a change of scenery.

To advance good management in these and other respects, the Association of Biomedical Communication Directors was formed in 1975. Lynn Baldwin, Sam Agnello, President in 1979, and many other BPA members belonged to the group—numbering 75 in 1979. They all headed full-service departments, and many additionally supervised educational facilities. They mostly had yearly budgets of over \$250,000.

The ABCD studied matters concerning operational and logistic efficiency, computer tracking of orders, ways and means, and fiscal considerations. The group became increasingly aware of the need for establishing productive workloads, job diversity, departmental rapport and morale, and other criteria for maintaining good personnel relations. Here was another example of biophotographers working to meet the challenges of the times.

## EQUIPMENT

Representative items that appeared in the third era are listed here, with the dates when they were exhibited at our meetings or described in BPA publications.

1967—Olympus Gastro Camera

1968—Tungsten-halogen lamps.

1970—Motor-driven NIKON F Camera for recording scintillation.

1971—The Pako 17B film processor.

1973—The improved Eastman Versamat Film Processor.

1974—The Zeiss Axiomat; a modular research photomicroscope of revolutionary design. The Kodak Supermatic 200; a sound camera for super-8 film.

Supermatic 8 Processor; for Ektachrome SM Film 7244; provided a 13½-minute camera-to-screen time for a 50 ft. roll.

Eastman Super-8 Videofilm Projector; for use in television chains.

1976—Kalart Victor Model 90; TV, 16mm optical sound projector. Kodak Royalprint Processor; black-and-white prints completely processed and dried in 55 seconds; made possible by resin-coated paper.

1978—Leitz Dialux 20 Microscope; for laboratory and research work; with Orthomat-W Camera for automatic exposures.

Hope Industries Processors; leaderless, dry-to-dry for roll and sheet color films.

Panasonic Pancopy Camera; for 35mm slides made by electrophotography.

1979—Philips Color Head; for enlargers; adjusted color balance by means of varying the intensities of three filtered light sources.

The Singer and Kodak Companies marketed a full line of Caramate and Ektagraphic slide projectors with integral facilities for slide synchronization and playing tape cassettes.

It ought not be overlooked that BPA members often evaluate devices before some of them become widely adopted. For example, Dr. Leo Leverage, of the AMA, was pictured in *Biomedical Communications*, September 1978, working with the PLATO Computer Terminal and the Thompson-CSF videodisc player. This recent advance promises to supplant records and tapes in many applications. A salient feature is that the disc is "read" by a laser beam rather than by a needle, or by a magnetic head. This eliminates noise and wear.

## CINEMATOGRAPHY

While the video recording of still and moving subjects received much attention in the third era, cinematography did not become orphaned. John Vetter was an ardent foster parent of the film technique. He and his committee members saw to it that the basic motion picture methods and uses were featured at most of the educational sessions promoted by BPA. Annual and chapter meetings covered the field as frequently as ever. The study classes were designed mainly for participants in the certification program. Advanced methods and applications, and research techniques were the topics at the meetings. The best way to indicate such progress is to outline key Journal papers of the era.

1965—Herbert Robb and Clarence Jabs, of Wayne State University, department of surgery; high-resolution filming of microcirculation in mesentery, liver, lung, etc.

Gottlieb Schneebeli; light and exposure control for high speed cinemicrographic runs.

James McKim, Theodore West, and William Stickley, of the University of Washington; single concept films for self-instruction.

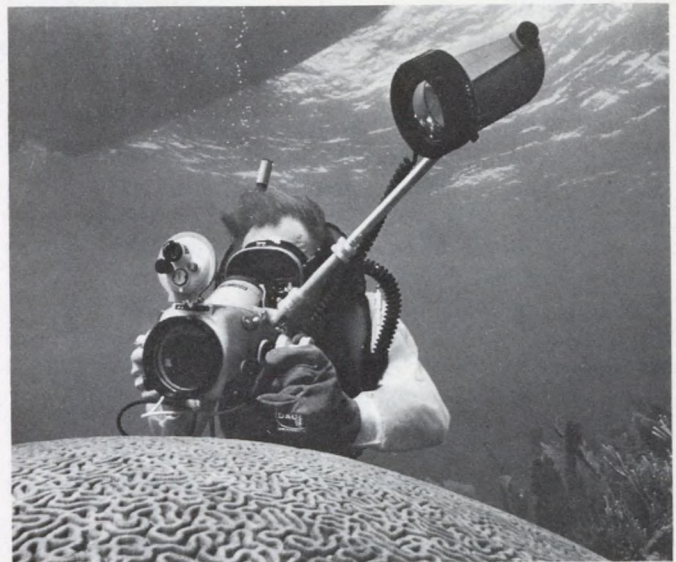
1966—Herbert Fischler, of the Jewish Chronic Disease Hospital, Brooklyn; assembling a phase contrast, time-lapse unit from available microscope, camera, incubation, and other components.

1967—Wiltz Wagner, Boyd Barker, and Giles Filley, of the University of Colorado Medical Center; quantitating blood flow in the pulmonary microcirculation; mechanical, high-speed, optical, electronic and physiological aspects.

1968—Zane Price; of the UCLA School of Medicine; membrane ruffling in cultured cells recorded photographically and verified by electron microscopy.

Nydia Meyers and Charles Schneider, of Wayne County General Hospital, Eloise, Michigan; a fast-acting, triple-axis, servohydraulic microscope stage on a one-ton antivibration support.

1970—David Grainger, of the University of Florida College of Dentistry, and Bruce Larrick, of Tufts University; techniques and instructional use for ultramagnification in dental cinematography.



Richard Massey films the intricacies of a brain coral.

1970—James Wilson, of Duke University Medical Center; heat-absorbing light pipe of borosilicate glass.

1971—Antol Herskovitz, Robert Liebert, and Richard Adelson, of SUNY, at Stonybrook; film on dentistry for showing to children in health delivery environments.

1972—Hans Dommasch, Bruce Brandell, and Edith Murray, of the University of Saskatchewan at Saskatoon; elaborate setup for the photographic and electronic analysis of gait.

1972—Nicholas Graver, William deVeer, and Andrew Tometsko, of the University of Rochester [N.Y.] School of Medicine and Dentistry; still photos of computer-generated displays of molecular models rephotographed to furnish cinematographic sequence.

1973—James Rapp and Richard Padula, of the University of Texas Medical Branch; fibre optic endoscope and microphone transducer inserted through myocardium for analyzing intracardiac functions.

1977—Carl Brandon, of the University of Massachusetts; circuit and lamp design for the high-speed cinematography of animals.

1978—Elizabeth Arthur, John Driscoll, and James Aquavella, of the Park Ridge Hospital, Rochester, NY; making good quality, color transfers to film from videotape.

## General and Association Activities

Some of the changes and highlights of biomedical cinematography show continued interest in the field.

In 1966, Gene K. Davis, of the Methodist Hospital in Houston, succeeded Daryl Miller to the chairmanship of the BPA Motion Picture Committee.

The American Science Film Association, ASFA, was founded in 1964, and the British Industrial and Scientific Film Association, BISFA, in 1967. Another organization dealing with scientific, non-theatrical films was the Council on International Non-theatrical Events, CINE; it was 10 years old in 1967. In 1969 769 films were shown. "Golden Eagle Awards" went to 18 BPA members. Ralph Creer was the Vice-President of CINE in 1969 and was active in gaining recognition for American films abroad.

In 1976 Warren Sturgis was Secretary, and Antol Herskovitz, Board Member, of CINE. They reported that, at the group's 30th Congress in Philadelphia, 200 scientific cinematographers from 23 countries participated.

Hans Dommasch entered the first symposium of the Canadian Science Film Association in 1968. The founding of this society was prompted by the International Science Film Association Congress in the Canadian "Expo '67."

Some of the film festivals whose activities peaked in the sixties were those held in Columbus, Ohio, San Francisco, New York, and Washington, D.C. In 1967 Sy Wexler won the "Plaque Lion of St. Mark" at the Venice Film Festival for his educational film "Human and Animal Beginnings". At an international film festival held in Tehran in 1970, Sy also won the "Silver Delfan Award".

Charles Engel was on the Editorial Board of the "Encyclopaedia Cinematographica" in Britain. He reported that, in 1970, about 2,000 films for documenting research, and for educational purposes, were listed.

Scientific cinematography was not supplanted by television. Rather, the need for kinetic information sources had grown immensely. Toward the end of the era, many new applications were found for video techniques.

## TELEVISION ESTABLISHED

BPA members have been involved with closed-circuit and other television projects throughout the third era. Once they realized that television lenses and camera lenses were twin portals for information, they teamed up with the new practitioners.

It soon became relatively easy to make the psychological adjustment needed to accommodate the new medium, because bi-photographers had had previous technical experience with sound motion pictures, public address systems, tape recorders, and some of the sophisticated lighting, photometric, and electronic equipment that was becoming common. But electronic expertise did have to be infused. Extensive maintenance and repair was beyond the scope of the photographers' duties. On the other hand they had a background of producing media for imparting information.

BPA concentrated on acquainting its members with the handling and applications of television systems. This was done in no small part by the chapters. A trend ensued as the third era began. Once members were familiarized with types and operation of video camera, meeting sessions turned to "selling" the new medium through demonstrations of its particular uses. As more and more institutions were equipped with CCTV facilities, tours of installations became common. Finally, interest settled down and television was treated like other basic communication media. It became a topic included in many of the later educational sessions.

A case history of adaptation to television was presented by the evolution that shaped the photographic department at Duke University. Based on active cinematographic production and research since the thirties, the Department of Anatomy began to investigate the uses of television in education in 1959, under the direction of Sam Agnello. In 1966 he formed the Division of Audiovisual Education from the Medical Illustration Unit and the Central Television Unit. In ten years a staff of 13 grew to 32. The Illustration Unit had been noteworthy before the merger and progressive in accepting the merger—the right combination for cooperation.

In the early thirties Elon Clark established a department of medical art and photography, performing both functions himself. Agnello, coming from the Department of Anatomy in 1966, ad-



Television techniques were often studied at chapter meetings. At the Rocky Mountain gathering in 1977, Frank Castro discusses the medium with Leon LeBeau and Dick Carter.

vanced the photographic phase and responded to the promise of television. He left Thomas Hurtgen, in 1980, a new challenge for the Division of Audiovisual Education—that of coordinating the illustration activities of several semi-autonomous satellite groups when the service moves into quarters in a greatly expanded teaching complex. It is intriguing to surmise that television, often thought to be divisive, will help the consolidation—the operating theatre, classrooms, laboratories, and buildings are linked together by a television microwave system.

Hurtgen's personnel organization puts television in perspective for such a complex. The proportions are: two in photography; one in art; and one in television. They share a \$400,000 budget in that proportion.

Not all departments have developed the use of television to this extent. Nevertheless, other institutions, and BPA too, have tenaciously explored the status of television. The 1956 and 1958 Annual Meetings in Rochester and Washington (discussed in the second era) presaged the need for BPA to become involved with television in the third era. Yet it was not until ten years later that television sessions started to highlight our meetings.

Sam Agnello and his BPA Committee on Television organized a half-day demonstration of the mechanics of television production at the 1966 affair in Lexington. It was conducted by Michael T. Romano, Coordinator of Medical Center Television at the University of Kentucky.

At the 1967 meeting in Toronto several television papers were given—general applications, by Stephen Dittmann—uses in surgery, by Leonard Hart—in radiology, by D. J. Hurley. Of special note was a section in the Salon for invited video tapes and tape-to-film transfers. Dittmann was the only entrant then, but the interest increased in subsequent meetings. The 1968 meeting in Los Angeles devoted an afternoon period to television demonstrations and discussions. Clifford Freehe was the leader of the program. Stephen Dittmann supervised a long special presentation during the 1969 meeting in Rochester, Minnesota. From then on, television was given routine status as a topic during Annual Meetings.

The history of the cohabitation of photography and television can be most readily presented by a chronological listing of chapter

### Chapter Television Sessions

| Date | Topic                        | Chapter         | Chaired by           |
|------|------------------------------|-----------------|----------------------|
| 1965 | Demonstration                | M. N. Ohio      | Joseph Merva         |
|      | Mobile units                 | M. S. eastern   | Robert Jackson       |
| 1966 | Introductory                 | M. Chicago      | Richard Bowman       |
|      | Tape recording               | M. Boston       | Clifford Freehe      |
| 1967 | Introductory                 | M. So. Calif.   | Donald Curran        |
|      | Report on CMT                | M. Cent. Ind.   | Seymour Friedburg    |
| 1968 | AAMI Ann. Meet               | Southwest       | Stephen Dittmann     |
|      | Workshop                     | 1. Pacific N.W. | Clifford Freehe      |
|      | Progress in color            | M. Wisconsin    | George Spuda         |
|      | Workshop                     | 1. Southwest    | Stephen Dittmann     |
|      | General, incl. dental        | M. Capitol      | Frank Reindl         |
|      | Hospital applications        | M. Boston       | Paul Showstark       |
|      | In-house systems             | M. So. Calif.   | George Le Feber      |
|      | Demonstration                | M. Lake Ont.    | Bill Bryson          |
|      | Cine-TV compared             | 2. S. eastern   | Dick Mason           |
|      | CMT report, via video        | M. Boston       | Jerry Glickman       |
| 1970 | Educational uses             | M. Chicago      | Dr. J. Smith         |
|      | Production methods           | R. W. Penna.    | Foster Moyer         |
|      | Preparation of graphics      | R. Midwest      | Jack De Bruin        |
|      | Production seminar           | M. Boston       | Harold Pyke          |
|      | New color equipment          | M. Boston       | Dick Kelley          |
|      | Medical applications         | R. Midsouth     | Jerry James          |
|      | Impact on education          | M. Ottawa       | Ellis Kerr           |
| 1971 | Tour, dental installation    | M. Chesapeake   | Phil Taylor          |
| 1972 | Tour, medical installation   | M. Capitol      | Dr. A. J. Tousimis   |
|      | Medical applications         | M. No. Calif.   | Tom Masterson        |
|      | Selecting, buying, equipment | M. New York     | Rose Marie Spitaleri |
| 1973 | Tour prototype classroom     | M. So. Calif.   | Wm. Millard          |
|      | Tour dental installation     | M. Boston       | John Sanders         |
|      | Progress in medicine         | M. New York     | Ken Winslow          |
|      | Hands-on demonstration       | M. Up. Midwest  | R. V. Yule           |
|      | Video cameras                | M. So. Calif.   | Chuck Arnold         |
|      | Tour clinical facility       | 1. Pacific N.W. | Warren Criss         |
|      | Tour endoscopic unit         | 1. Up. Midwest  | D. Lois Anderson     |
| 1974 | Amphitheatre cable setup     | M. New York     | Antol Herskovitz     |
| 1975 | General review CCTV          | M. Prairie      | Fred Hissong         |
|      | Tour network facilities      | M. Chicago      | Charles Crum         |
|      | Basic television electronics | M. New York     | Richard Marcus       |
|      | Review applications          | 2. Up. Midwest  | Dr. W. R. Fifer      |
|      | Coaxial hookups              | M. Chicago      | Charles Crum         |
|      | Microwave linkage            | M. Wisconsin    | George Spuda         |
|      | BPA preview on tape          | M. San Diego    | Bob Turner           |
| 1977 | Cine, stills, for televising | R. Boston       | Lewis Koster         |
|      | BPA lecture via live TV      | M. So. Calif.   | Richard Morrone      |
| 1978 | Designing systems            | M. So. Calif.   | Joel Amromin         |

activities. The following abbreviations indicate the length of the sessions and simplify the table: M—monthly meeting; 1, 2—one or two-day symposium or seminar; R—regional event; W—workshop; AAMI—Association for the Advancement of Medical Instrumentation; CMT—Council on Medical Television.

Unless you are interested in "the record," you will not need to scan more than the lefthand column.

As was foreseen by progressive BPA members, television and

cinematography each found valuable application. One of the salient features of television, apart from the impact of immediacy, was the presentation of small fields of view to large or dispersed audiences. Only one or two students can watch an oral or ophthalmic operation, whereas it can be monitored for many. (This, of course, also has been one of the benefits of close-up cinematography.) Experience in television production has become essential to biophotographers. Training in the medium is now required for RBP aspirants.

After several years of testing TV waters, BPA has settled down to the acceptance of television as one more effective means for communication. It has not, as once feared, the main channel for carrying all information from one group to another.

Not only did television serve to educate students and professionals in the health and biological sciences, but the medium was used also to inform patients. For example, foreseeing the emphasis that hospital staffs were going to put on preventing illness (as well as on treating illness), the directors of the Fairview Hospital in Cleveland inaugurated a CCTV system in 1970. Its special purpose was to promote good health habits. The channel was provided free to patients in their rooms and elsewhere in the hospital. Much of the programming was done by the medical and illustration services. Topics, including appropriate ones for children, were geared to explain and augment counsel by medical and nursing staffs.

During the second era the closed-circuit system of television predominated in the biological field. This is still largely true. Yet generally broadcast programs are gaining in application and sophistication. For example, in 1976 the University of Washington in Seattle inaugurated programs to be transmitted by a Communications Technology Satellite from its School of Nursing. The signals could be reflected to receiving locations in western regions like Colorado, Montana, and Hawaii. Also to eastern areas such as Maryland, Kentucky, and Alabama. Another growing application of medical communication via satellite was pioneered by Canadian radiologists, who provided audiovisual consultations between the Moose Factory General Hospital near Hudson Bay and the University Hospital in London, Ontario. The remote facility served 10,000 people—mostly Indian and Inuit. Radiologists in London had remote control of the camera scanning the radiographs. The system was described in the March 1979 issue of the *Journal of the Canadian Association of Radiologists*. (If necessary, clinical photographs could also be scanned.)

Clearly, BPA has been wise to make *pro bono* communication the overriding philosophy in furthering its aims. Our members, having long experience with cameras and lighting techniques, can contribute immensely.

#### Journal TV Articles

The Journal, too, kept members informed on various phases of television. Key articles were furnished by the following:

1954—Phillip A. Conrath, of the St. Louis University School of Medicine; color motion pictures for presentation via the newly emerged color television.

1959—W. E. Morrison, of the University of Texas Dental Branch; an intraoral vidicon.

1960—Clifford L. Freehe; video microscopy.

1968—Frank J. Reindl; CCTV for viewing dental procedures; single-concept presentations.

Gerald G. Graham, of the National Film Board of Canada; review of systems and of the indispensability of TV and motion pictures in biocommunication.

1971—Videoplay Industries Inc.; description of their telemicroscope for transmitting microsurgery.

1973—Stephen P. Dittmann; review of impact of TV on the health sciences.

1975—James R. Hartzler; comparison of cine and video production methods.

#### EXTRA MEMBER ACHIEVEMENTS

In addition to direct contributions to visual aids in biomedical communications, BPA members assist the professionals they serve with illustrations for publications. Moreover many have produced photographic and scientific works themselves. Books by our early members have been discussed in the account of BPA's first era. Another of the early books was "Dermatological Histopathologic Technique" by Avis Gregersen. This went into a third edition in 1957. In 1963 she had willed the last 50 copies to BPA for sale to the membership through Jack Arnold. Contributions in the third era increased notably, as the following list indicates:

Sam Dunton—"A Guide to Photographing Animals"; Greenberg, 1956.

Peter Hansell—"A System of Ophthalmic Illustration"; Charles C. Thomas, 1957. "A Guide to Medical Photography"; University Park Press, Baltimore, 1979.

Arthur Smialowski—"Photography in Medicine"; Charles C. Thomas, 1960. "Photographic and Illustration for Medical Writing"; Charles C. Thomas, 1962.

H. Lou Gibson—"Photography of Patients"; Charles C. Thomas, 1952/1960.

Charles Schroeter—"The Dentition of Man"; University of Washington, 1965. (An atlas of 80 plates, each with 7 views of the tooth involved.)

Ralph Creer—"Medical Film Catalog"; American Medical Association, 1965. (For this and other accomplishments, he was named Man of the Year by *Business Screen* in 1966.)

Alfred Blaker—"Photography for Scientific Publication", 1965; "Field Photography", 1976; "Handbook for Scientific Photography", 1977. W. H. Freeman.

Oscar Richards—"The Billings Microscope Collection"; American Registry of Pathology, 1966.

H. Ross Jackson—"Natural Science Photography"; Canada Department of Agriculture, 1974.

Roger Loveland—"Photomicrography"; John Wiley, 1970.

Ira A. Abrahamson Jr. M.D.—"Color Atlas of Anterior Segment Eye Diseases"; Van Nostrand-Reinhold, 1974, and "Know Your Eyes", Robert Kreige, 1977.

Ralph Buchsbaum—"Animals without Backbones"; 2nd. ed.; University of Chicago Press, 1976.

J. D. Brubaker—"Safe Illumination Limits in Surgery and Medicine and Their Measurement"; published by the author, 1978.

H. Lou Gibson—"Photography by Infrared"; John Wiley, 1978.

Roman Vishniac—"Vanished World"; in preparation, Sarrar, Straus, Giroux, 1979.

Other members have authored sections of books. Also important for the recognition of BPA were the instances in which BPA photographers have been credited with making illustrations. (In this respect, the inclusion of RBP when appropriate also draws attention to BPA that could otherwise be lost.) Examples are:

#### Authors of Sections

In "Medical Photography in Practice", E. F. Linsen, Ed., Fountain Press, 1961—Charles Engel, Peter Hansell, Robert Olerenshaw.

In "Photography for the Scientist", Charles Engel, Ed., Aca-

demic Press, 1968—Lou Gibson, Peter Hansell, Robert Kolvoord, William Martinsen, Robert Ollerenshaw.

In “Photography in Archaeology”, University of New Mexico Press, 1975—Martin Scott.

### Photographers

In “Surgery of Facial Fractures”, W. B. Saunders, 1964—Anthony Kuzma, Robert Teevan.

In “Atlas of the Human Anatomy”, for the Family Medical Guide of *Better Homes and Gardens*, ca. 1969. (850 detailed color illustrations)—Paul Zuckerman.

In “Atlas of Otorhinolaryngology and Bronchoesophagology”, W. B. Saunders, 1969—Joseph Brubaker, Paul Holinger.

In *La pratique de la médecine*, “Encyclopédie Universelle”, Marabout Université, Editions Gérard, 1962—Peary Staub.

In “Major Wine Grape Varieties of Australia”, Commonwealth Scientific and Industrial Research Organization, 1979—E. A. Lawton.

Other members who can share in providing visibility for BPA are those who have contributed to professional journals. This aspect is covered in the section on publicity further on. Their work has been in a wide variety of fields that has often not been recognized. For example, Ray Bradbury, D.V.M., of Mount Vernon, Washington, became the Editor of *The Bovine Practitioner* in the sixties.

In addition to publishing, many members have realized achievements in other areas. These further realms are worthy of note.

One-man shows have offered opportunities for demonstrating their talents. Such exhibitions have dealt with varied topics.

Basic Art Forms—Wilfred Lee, at the University of Liverpool, 1967.

Sociological Photography—Hans Dommasch, at the Lufthansa Training Center, and in Saskatoon, 1975.

Nutrition—Fritz Goro, Massachusetts Institute of Photography, 1975.

Notable awards have been granted BPA members. When Winston Churchill died, an educational scholarship trust was set up in each British Commonwealth for studies in all fields of benefit to the community of man. In 1968 two awards were given to photographers—the first time this profession had been honored. One of the recipients was our member, William Nolan, of Australia. This allowed him to visit biomedical photographic departments in the USA and Canada over a period of 26 weeks. He started in Seattle and made his way to Boston, visiting 20 departments of our members on the way. In 1971 Charles Hodge was awarded the Combined Royal Colleges Medal for his work with fluorescein tracers during the photography of brain surgery.

Robert J. Trethewey, of Menorah Medical Center, Kansas City, won the 1976 Walnut Leaf Gold Award at the John Muir Hospital annual, world-wide, film festival held there. He photographed and directed the film “Colonoscopy with Polypectomy” In 1977 Hans Dommasch earned the Queen’s Silver Jubilee Medal for his contributions to art and science. He collected photographs, from daguerreotypes to modern examples, for the Mendel Art Gallery in Saskatoon. The exhibit was called “The Silver Image: A History of Photography, 1839–1970.”

John Alley won the Robert Dumke Award of the Wisconsin News Photographers Association. Sam Agnello gained the fourth

“Raster” Award of HeSCA—one of five recipients in the past 20 years.

The Centennial Yearbook of the New York Microscopical Society (1977) received an award from the Printing Industries of Metropolitan New York. The book was designed by Margaret Uibel, of Lennox Hill Hospital, edited by Margaret Cubberly, and illustrated in part by Eric Grave of the College of Physicians and Surgeons.

Julius Weber received the honorary degree of Doctor of Science from the Jersey State College in 1974—the first time the honor had been bestowed upon a photographer. In that year too, Fritz Goro, after 30 years on the staff of *Life*, was made Research Associate of the Scripps Oceanographic Institute. In 1979 Carroll Weiss was appointed Adjunct Associate Professor, Dermatology Department, of the Miami School of Medicine. In the same year, Professor Donald Fritts moved to the University of Illinois Veterinary College to accept the post of Director of the Audiovisual Section. Dan Patton, of the Ohio State University College of Veterinary Medicine has been adjunct instructor in biophotography since 1974.

Serendipity rewarded Stanley Klosevych in 1975. His series of tutorials in our Journal was accepted as a thesis for the Royal Microscopical Society Diploma in Light Microscopy from Oxford.

Jack De Bruin was elected to the prestigious physics society, Sigma Xi, in 1975, for his technical achievements in scientific photography. He is currently Director of Photography and Assistant Professor at the Chicago Medical School. In 1977 Robert Smith became a diplomate of the Royal Microscopical Society. In that year too, Evan Gushul, of the Research Station in Lethbridge, was elected Honorary Member of the Entomological Society of Alberta for his outstanding photography and cinematography of insects.

BPA members were also appreciated by other photographic societies. In 1977 Gary Sterner, of the Greater Baltimore Medical Center, was named “Creative Photographer of the Year” and “Mister Professional Photographer”, by the Professional Photographers of America. Margaret Conneely, of the Loyola University Medical Center, was prominent in Photographic Society of America affairs. For BPA, she was elected the first woman President of our Chicago Chapter in 1975.

In 1979 Ralph Creer’s gift of his extensive collection of references, reprints, translations, journals and books on medical photography, cinematography, and television was deemed worthy of acceptance by the University of Illinois Medical Center archives in Chicago.

In 1980 some of the cinematographic, 16mm, “firsts” by Harris Tuttle were outlined in *Movie Maker* (Great Britain). Of interest to biophotographers were: 1921—Documentation of Oppenheims Disease and of Lung Collapse; and Surgical recordings of hernia repair and of caesarean section. 1935—capillary flow in the mesentery of a rabbit, filmed in slow motion in color; for which he was granted a fellowship in the Royal Photographic Society. In 1936 BPA members saw his film on the human vocal cords of a patient having an externalized opening due to cancer of the nasopharynx. For natural science his 1937 film of the fertilization and development of trout eggs was an early example of time-lapse research.

Several members left their institutional occupations to form their own businesses. Lester Bergman, Robert Kolvoord, Thomas Uithoven, Carroll Weiss, Paul Zuckerman, Wynne Eastman, Joseph Koziicki, and Cindy Momchilov come to mind.

It is not practical to report the extra achievements of all members. These notes indicate the diversity of expertise comprised in our organization.





Panels on "Our Amazon Basin Expedition, 1974" in the Milwaukee Public Museum exhibited several facets of museum photography. For such displays and many other applications, field and in-house photographers, sometimes acting in both capacities, serve those working in anthropology, archaeology, ethnology, natural science, and public education. These photographs were made by Janice L. Mahlberg.

## FIELD EXPERIENCES

Not all the work of the biophotographer is confined to the studio and darkroom. There are opportunities for occasional or regular activities in the field. This is especially true for forestry, agricultural engineering, geology, archaeology, anthropology, museology, and World health functions.

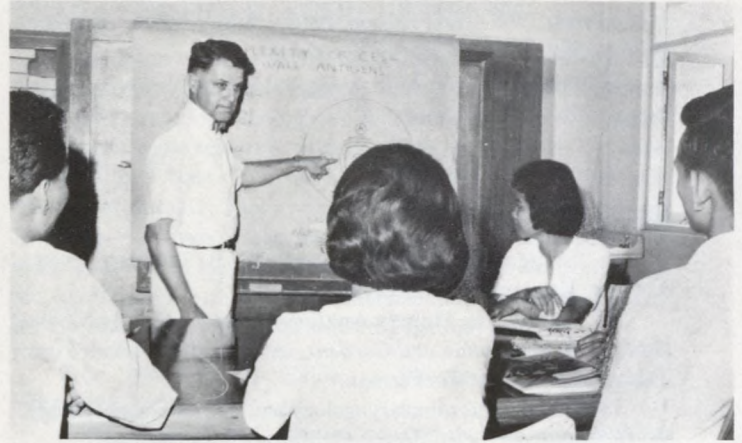
Janice L. Mahlberg, of the Milwaukee Public Museum, accompanied a short museum expedition to the upper Amazon in 1974. She documented the activities of the scientific members and also obtained many photographs for public displays in the Museum. Biophotographers can well be cognizant of the needs of such expeditions. It is not always practical to take a professional photographer along. Hence, it is wise to brief the teams on the photographic techniques they will have to practice themselves. Here, BPA can be of service.

When the photographer's duties are mainly carried out in a health-science institution, non-routine opportunities for interesting field work in medical or even other disciplines sometimes present themselves. Ronald Irvine of Queens University, Kingston, Canada, got out of his medical photographic laboratory assignments and faculty duties in 1967, when he was "lent" to the Canadian Department of Energy, Mines, and Resources for a special assignment on Baffin Island. A three-man team studied the flora and plant ecology of the region.

Irvine photographed the taxonomic details of all types of vegetation. There was plenty of sunlight—24 hours a day of it. But because there was also abundant wind, close-up records of grasses, mosses, lichens and flowers at 1:1, had to be made with electronic flash illumination. About 700 photographs were made and turned over to his sponsors.

Personnel and all supplies had to be air lifted in and out of the locality. A tent was his home away from home.

Teaching medicine in the University of Cheingmai, Thailand, calls for visual aids just as it does in Chicago. And when a Professor from Chicago has to lecture in English instead of Thai, customized illustration becomes imperative. Leon LeBeau found this out when he was sent by the University of Illinois Medical Center (1963–



Leon LeBeau lectures to Thai students.



Ron Irvine enjoying a working trip to the Canadian Arctic.

1967) to serve in a joint Thai-American project of developing a new medical school.

He supervised the production of photographs, art, and diagrams to create a wealth of unique visual images that could transcend the language barrier. When he left, the University had a valuable illustration file of over 4,000 teaching slides. These and the methods Dr. LeBeau expounded, were indispensable to the Thai professors lecturing in their own language.

His field was immunology and microbiology. He made many photographic records of clinical conditions and diseases for use in his own department upon his return. This collection had been augmented during his short stays in India and Pakistan.

Leon's extra-domiciliary activities afforded him valuable and interesting experiences and humanitarian satisfaction, as well as knowledge and materials for subsequent utility. BPA members gained from his many specialized lectures, and his council on avoiding the hazards of infection, given in our programs of continuing education.

Following his years of photographic activity and administrative duties with the Veterans Administration, Graham Eddy entered



Exhibit designed by Leon LeBeau on Community Health Education in Thailand draws a family audience.

the employment of the Department of State. His field was communication in general and the use of photographs and graphics in particular. Starting in 1960, he was assigned to the Ministries of Information in Iran, East Pakistan, Afghanistan, and of Education in Viet Nam. Then he went to the Ministry of Health in Viet Nam (1968-1972).

A challenging aspect of his work was designing visual aids and their modes of presentation to suit unsophisticated personnel. Unfamiliarity with the languages was not detrimental to the results, because he was obliged to make the instruction lean toward the visual rather than the verbal. This of course, is the forte of the bi-photographer.

One way to get away from the daily routine for a while is to pack a camera and electronic flash from the well-equipped department at the University of Southern California School of Medicine and take it to a refugee camp in West Pakistan. Dawn-to-dusk work under the difficult conditions posed by no medical or photographic personnel or facilities can be compensated by some leisure hours for exploring the country on camel back, sailing a dhow in Karachi Harbor, and bucking a Land Rover into the Khyber Pass.

Such was the adventure of Lloyd Matlovsky in 1970, when he assisted the World Health Organization in documenting control of a smallpox epidemic centered around the Gandhi Karangi camp. He and Dr. Emma Shelkhina of the Institute for Viral Preparation in Moscow constituted the team sent in. They were guided by a driver and an interpreter. In five weeks the epidemic was halted and contained. During that time 2100 Kodachrome slides were made.



Graham Eddy makes learning enjoyable for students in Viet Nam.

Patients were lifted onto a blue sheet and eight views and clo-ups taken. Many records were obtained serially from the non-ruptive onset of the disease to the recovery, as well as individual photographs made at significant stages. Vaccination and improved nutrition controlled the epidemic and of course, protected the team.

The satisfaction of meeting the challenge was enhanced during the debriefing at Geneva, where the work and photographs were highly praised by Dr. D. A. Henderson, Chief of the Smallpox Eradication Unit of W.H.O. The venture afforded Lloyd visits to major Italian cities on the way home. In 1979 he left for another photographic assignment for the W.H.O. that would take him to Southeast Asia. He documented immunization programs in India and Indonesia.

Richard Massey in 1977 accepted the post of clinical photographer in the King Faisal Specialist Hospital and Research Center in Saudi Arabia. For this exotic location he and his staff found that applications and subject matter have a universality in all progressive institutions.

Debi Stambaugh spent a large part of her 1979 vacation in Australia on location with the Royal Flying Doctor service there. She photographically documented some of their activities in bringing health care to the outback. The photographs were for use in public relations. Visits to photographic departments, such as those of BPA Members Thomas F. Cottier, Edwin A. Lawton, and Glenys Van Den Brenk, made her feel like a cordially welcomed visitor rather than a tourist.

In 1980 Lawton came to the USA. Starting in California with a visit to the Rays, he stopped to see several BPA installations and members. During his trip he spent over a week in Rochester where he observed activities at RIT, the International Museum of Photography, and biophotographic departments in the University of Rochester School of Medicine and the Rochester General Hospital. He also made a trip to the Agricultural Experiment Station in Geneva, New York. It was then on to the Research Branch of the Canada Department of Agriculture before arrival at the Annual Meeting in Boston to present a paper.

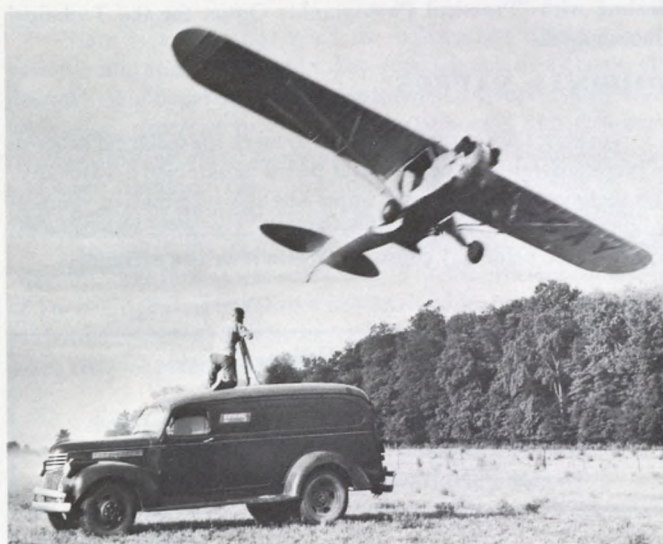
Our members sometimes have opportunities to lecture abroad. Ralph Creer has paid many visits to Europe and Japan. Leonard Julin and Clifford Freehe gave courses in Peru; Robert Smith, in Germany and Switzerland; and Sam Agnello in Holland. Smith and Martin Scott lectured in the USSR. Other BPA members who have lectured overseas during our third era are Charles Hodge, Stanley Klosevych, and John Vetter.



Hans Dommasch hunts high and low for his natural history subjects—from the banding of a young golden eagle to the cogitations of a leopard frog.



Edmond Alexander, of the University of Texas Health Science Center, Dallas, went even lower to photograph this banded butterfly fish among the gorgonian corals in the Bahamas.



Lucien St. Laurent ducks as he films the pattern of crop dust distribution for the Canada Department of Agriculture.

## VISIBILITY FACTORS

The general public is occasionally made aware of the existence of the field of biophotography, and of the role of BPA in it, through newspaper and television features reporting our activities, especially in association with our meetings. Such exposure no doubt makes medical photography more acceptable to patients as a normal routine. However these news items do little for the recruitment of members and the requisition of increased application. More effective in these respects have been features, picture spreads, and articles by and about BPA members in promotional journals for the biomedical, hospital, and photographic engineering professionals.

Contributions of illustration to purely scientific and medical journals do not escape notice, but they are likely to be taken for granted. Recognition also comes to members who author papers. But while biomedical photography is thereby spotlighted, BPA is hidden in the wings (although the use of RBP by authors helps BPA and biophotography). In contrast, trade and some professional journal features call attention to BPA as well as to the contributor. Members should realize that there are only a few measures BPA itself can take for gaining merited publicity. Journal publication is therefore important for calling attention to our professional aims and standing.

For many years up until 1974, our member Sylvia Covet, Executive Editor for *Postgraduate Medicine* and later Editorial Director for Modern Medicine Publications, featured picture spreads of the BPA Salon entries that had won the "Postgraduate Medicine Awards". The journal was introduced at the beginning of our third era. Stanley McComb was the first BPA member to contribute an article for its pages. Kodak's *Medical Radiography and Photography* often carried representative examples from the Salons in the sixties.

There was a surge of new professional trade journals at the onset of our third era. Many reflected the growing importance of biomedical photography. Our members made significant technical and sociological contributions.

It is probable that the BPA membership at large is not aware of these contributors and of the valuable notice they brought to our Association. It is not practical to name each news feature, article, picture spread, or interview. So the journals and BPA members are

listed here for only the first 10 years of the third era and in the approximate chronological order of the appearance of the BPA items. It should be noted, that many members, though listed only once for a given journal, made several contributions to it.

*Film World*—Stephen Dittmann, Jack Fason, Paul Zuckerman.

*Photo Methods for Industry*—Herbert Ferguson, Jim McKim, Chester Reather, Stanley McComb, Julius Weber, Lloyd Varden, Lewis Koster, Herbert Robb, Clarence Jabs, Percy Brooks, David Lubin, Sidney Shapiro, Howard Tribe, John Trauger, Renald von Muchow, John Probst III, Roger Loveland, William de Veer.

*Visual Medicine* (to *Visual/Sonic Medicine*, 1967)—Paul Zuckerman, Lou Gibson, Peter Hansell, Leo Leverage, Robert Haupt, Sam Agnello,\* Warren Sturgis,\* Robert Albertin, Lewis Koster, Loyd Varden,\* Julius Weber, Julius Halsman, Torleif Gjersvik, Robert Smith, Nile Root, Gene Davis, John Vetter, Stanley Klosevych,\* Ross Jackson, Alfred Benjamin. (\*Served also in editorial capacity.)

*Industrial Photography*—Lewis Koster, John Withee, Terry George, Nicholas Graver, Torleif Gjersvik, Will Renner, Sam Ehrlich, Hans Dommasch, Ross Jackson, Stanley Klosevych, John deBlois, Henrick Malpica, Carroll Weiss, Herbert Fishler, Michael Reber.

*Photographic Applications in Science and Technology* (to *Functional Photography* ca. 1972)—John Goeller, Mortimer Abramowitz, Don Wong, Robert Smith, Lewis Koster, William de Veer, Gregg Puster, Peter Hansell, William Smith, Margaret Cubberly, Percy Brooks, Stephen Shapiro, Ross Jackson, Krischen Acharia, John Vetter, Gabriel Palkuti.

*Canadian Industrial Photography* (Canadian Professional Photography in 1969)—Arthur Smialowski, David Dunn, Jean Garneau, Stanley Klosevych, Ben Korda, John deBlois.

*Medical World News*—Joseph Goren, Suzanne Markham, Leo Johnson, Joe Mineo, Robert Sisson, Houston Annual Meeting, Herbert Smith, Alfred Benjamin, June Armstrong, John Kath.

*bio-Graphic Quarterly* (Canadian Department of Agriculture)—Gordon Parker, Ross Jackson, Lucien St. Laurent, Stanley Klosevych.

*Rangefinder*—Alfred Benjamin, Jack Arnold, Robert Sisson, Paul Miller, Roman Vishniac, Paul Newman. Lynn Jones wrote several features "Lynn for the Pro".

*Image Dynamics*—Lloyd Varden, Julius Weber, Lewis Koster.

*Canadian Photography*, Stanley Klosevych, Ross Jackson.

*Hospital Tribune*—John Huber, Luther Gilliam.

*Lancet*—Charles Engel.

*Technical Photography*—Robert Smith.

*Association and Society Manager*—Howard Tribe.

*Biomedical Communications*—Stephen Dittmann, Paul Showstark, Paul Miller, John Vetter, Joseph Twardy, Herbert Fishler, Carroll Weiss, Margaret Cubberly, John Walzer.

*National Geographic*—Robert Sisson, (on insect photography).

*Modern Photography*—Roman Vishniac.

*American Laboratory*—John Vetter.

*Modern Medicine*—Alfred Benjamin, David Dunn.

*Annals of Otolaryngology, Rhinology, and Laryngology*—Paul Holinger.

*Western Journal of Medicine*—Alfred Benjamin.

*Journal of Immunological Methods*—Dennis Ward.

*Medical Meetings*—Ralph Creer.

*House Physician Reporter*—Thomas Hurtgen, Ronald Irvine, Gerald Stuart, Larry La Seure.

*Nikkei Medical*—Alfred Benjamin.

*Professional Photography (PPA)*—David Dunn

*Journal of Medical Education*—Sam Agnello

*Viva*—Debi Stambaugh

*OMNI*—Fritz Goro

This impressive summary of ten years of effort by our members—and the continued contributions of like impact after 1975—demonstrates the amount of public notice our Association has received. It is reasonable to state that their work and the support given by the Journals involved, must have influenced the advancement of BPA aims and helped to establish the repute of present-day biomedical communication. Our members owe gratitude to those who have so improved the visibility of BPA. They have done more than BPA as an organization could have done.

In addition to such publication there have been other projects in which our members participated for the mutual benefit of BPA and of those whom it serves. Commercial concerns often call upon writers to furnish biomedical photographic information. For example, in 1977 Carroll Weiss started the preparation of a series of newsletters on clinical photography for E. R. Squibb and Sons, Inc. These were to be distributed to physicians to help them to improve their non-institutional photography and to recognize and request explicit photographs from illustration services. Abbott Laboratories furnished a beautifully illustrated, undated, atlas of pathological conditions of the eye, ear, and throat. The photographs of laryngeal pathology were made by Joseph Brubaker and Paul Holinger with the endoscopic camera they described in our Journal during 1946. In 1980 John Vetter served as a technical consultant for a series of pamphlets "Photomicrography with Polaroid Land Films" and provided noteworthy illustrations.

The aid BPA has given to professional groups in furnishing scientific exhibits, in judging their photographic exhibitions, and in providing lectures and instruction, is described elsewhere in this history. A noteworthy and representative contribution which gained notice for BPA in the third era was an exhibit we prepared for the 1971 Annual Meeting of the World Medical Association in Ottawa. It consisted of eight colorful panels and a triangular stand. Emil Purgina, principal artist at the Medical Communication Services of the University of Ottawa, helped our members design the presentation under the theme "Man and His Lens in the Service of Medicine". Among those who staffed the show were Ben Korda, Lucient St. Laurent, Charles Beddoe, Ross Jackson, and Stanley Klosevych.

In 1979 BPA sponsored a seminar at the Visual Communications Congress in New York. Martin Scott arranged a program

dealing with "Practical Photographic Optics for the Technical Photographer".

## JOURNAL PAPERS

As ever, the Journal continued to mark the technical progress of biophotography. The Editorial Board maintained a watch over the technical accuracy and appraised the informative value of submitted papers. Members who had little experience with technical writing were helped by consultants with rewrite assignments.

### Journal Editors

|                    |           |
|--------------------|-----------|
| Verlin Y. Yamamoto | 1966-1968 |
| Stanley Klosevych  | 1968-1975 |
| Thomas P. Hurtgen  | 1976-     |

In 1980 the Journal name was changed to the "*Journal of Biological Photography*." It remains the official publication of BPA. This was fitting because our Journal always has covered a broad spectrum of papers aimed at biophotographers in all disciplines. The fact that the papers have dealt largely with topics in the health sciences was due to the early recognition of the needs for coalescence by medical photographers.

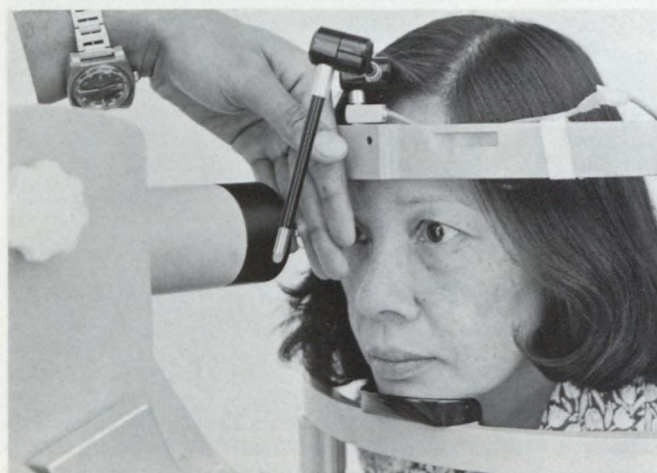
Nevertheless, the editorial coverage has been broad and its pool of authors keep making the Journal valuable to all biophotographers. The following review of the 170 major papers published over the last 10 volumes bears this out:

117 papers were technical. Of these, 40 were specifically on the health sciences; 32 on the natural sciences and agriculture; and 45 on photographic techniques (such as processing and photomicrography) and video procedures applicable in all fields. Reports of new applications were often incident to the technical expositions, as well as descriptions of aids to established ones.

53 dealt with communication, education, graphics, and departmental and professional administration.

There were 36 of these major papers from Canada; three from England; and one each from Finland, Japan, and Saudi Arabia.

Authors were leaders in diverse fields—biophotography, laboratory technology, photomicrography, graphics, applied chemistry and physics, health sciences, education, and law.



An illustration from Don Wong's tutorial on ophthalmic photography.

There is a universal need for information applicable to biocommunication. This field today demands relatively large, efficiently run departments. In addition to complex technical knowledge, expertise in management, personnel and customer relations, and advanced education methodology is becoming more and more necessary. The Journal will continue to provide all biophotographers with the information they need in these respects.

Carrying on the refinements introduced by Stanley Klosevych when the large format was adopted in 1973, the efficient editorship of Tom Hurtgen has established new levels of quality with economy. He has been able to utilize an increased amount of color illustrations when vital for revealing pertinent details.

### Technical Articles

- 1967—Ralph Glazier and Albert Fernelius, of the Animal Diseases Laboratory, U.S. Department of Agriculture, Ames, Iowa; agar gel contrast staining for precipitin lines.  
Robert Gervais, M.D., of the University of Florida; considerate handling of patients.  
Ronald Irvine; autoradiographic labelling of exfoliated bladder cells.  
Ralph Glazier, Wayne Romp, and George Engstrom, Ph.D.; lighting fluorescent chromatograms.  
Dixie Sparks, of the University of Miami School of Medicine; rapid sequential photography of fluorescein in the ocular fundus.
- 1968—Raymond Lunnon; clinical ultraviolet photography.  
Louis Nichols, of the Mayo Clinic; and Stanley McComb; adaptation of Commercial Ektachrome Film to the gastrocamera.
- 1969—Burton Staugaard; enlarging electron micrographs for high definition.  
Tadashi Ueno; a stereophotogrammetric microscope.  
Earl Choromokos, Kyuya Kogure, and David Noble; infrared absorption angiography of the cerebral circulation (color technique).  
Victor Solman; photography in bird control for airplane safety.
- 1970—Howard Severson, Canada Department of Agriculture, Vancouver; controlling insect subjects for photography.  
Peter Hansell and K. Duguid; an aluminized, light-weight, thin plastic membrane for providing a large mirror of photographic quality over the operating table.
- 1971—Robert Albertin; the photomicrotome for sequential photography of the block being sectioned.  
Lee Allen, of the University of Iowa; stereoscopic fluorescein angiography of the ocular fundus.  
Harold Reuter; underwater photography.
- 1972—Clifford Freehe; 35mm camera setup for dental and other closeups.  
Hans Dommasch *et al.*; photography in human gait analysis.  
Nicholas Graver *et al.*; animation of computer-generated molecular models.
- 1973—Uwe Reischl and Bernard Tebbens, of UC in Berkeley; thermographic scanning of human subjects under stress.
- 1973—Margaret Cubberly; photographing ultrasound scans in diagnostic ophthalmology.
- 1974—Will Renner and Richard Walters; use of color microfiche for self-instruction.  
Verlin Yamamoto; the biophotographer faced with expanding responsibilities.
- 1975—Stanley Klosevych; comparison of 8mm and 16mm films for research and education.  
Leo Niilo and Evan Gushul; automated photographic immunogram recorder.
- 1976—Leon LeBeau; effective lighting for photographing microbial colonies.  
Robert Whitehead, of the National Research Council of Canada; studying river pollutant flow by computer shading on 16mm film.  
Carroll Weiss; optical "staining" with infrared color film for the photomicrography of live, colorless specimens.
- 1977—Leonard Konikiewicz, of the Polyclinic Medical Center, Harrisburg, Pennsylvania; demystification and applications of Kirlian photography.  
Robert Flower, of Johns Hopkins University; rapid—sequence choroidal angiography.  
Carl Brandon, of the University of Massachusetts; high-speed stroboscopic photography of animals.
- 1978—Charles Hodge, Lucas Yamamoto, and William Feindel; fluorescein angiography of the brain.  
Donald Macurda; photographing modern crinoids for a museum of paleontology.  
Marybeth Peters; the US copyright act of 1976.  
Matti Kauppi and Anneli Kauppe; infrared color photography of lichens used in the study of pollution damage.  
Garry Allan, of the Health Sciences Centre, Winnipeg; pediatric photography (in which he propounded the sensibility that should be brought to the photography of all patients).
- 1979—Barbara Katzenberg, of the University of Pittsburgh School of Medicine; photographing otolaryngological microsurgery.  
Terence Davidson, M.D., of the University of California at San Diego; photography of facial reconstructive surgery.  
Will Renner; efficiency factors in departmental logistics and management.  
Cecil D. Gilliam *et al.*; of the VA hospital in Birmingham, AL; color photography of electronic image scans in nuclear medicine.  
Eisaku Kanazawa of Nihon University and Noriaki Ikeda, of Kitasako University; perspective correction, by computer, of topographic moire anthropometric photographs.  
Robert Hoffman, Modulation Optics Incorporated; photomicrography of invisible subjects by the modulation of phase gradients.  
Jeffery Cepull, Rochester Institute of Technology; program evaluation and review technique (PERT) for cine and video presentations.  
David Gray; methods for assessing biomedical productions.
- 1980—Ian Soutar; changing the selenium exposure meter to one of a silicon type for reading infrared exposure times.  
Vernon Miller; photographic investigation of the Shroud of Turin.

## Tutorials

One of the valuable contributions to our Journal have been the lengthy tutorial articles aimed at BPA's continuing education and training programs. In *natural science and agricultural photography*; Ross Jackson—Four Parts in 1972. in *photomicrography*; Stanley Klosevych—Parts I, II, 1974; Parts III to VI, 1975. In *ophthalmic photography*; Don Wong—Parts I and II, 1976; Parts III to V, 1977.

BPA presents many facets to the World. The Journal is our face to the World. It is prestigious and authoritative. Recognition of its style and quality was given in 1978 by an award from the Rochester, New York, Chapter of the Society for Technical Communication. It is the major factor in BPA's aim to constitute a center for biophotographic information.

## LOOKING AHEAD

In 1931 it would have been impossible to divine the course that today's techniques, explorations, and applications have taken biocommunication. Yet it is clear that our founders embarked in the right direction.

We cannot foresee every vista in the next 50 years. We in our early period—and photography itself—were swept up in a surge generated by the introduction of color materials. We, in the 1980's

can already feel the lapping of a new, vastly more formidable surge. The capabilities of photography will have to be linked with the amazing potentialities of microelectronics. Illustration will be revolutionized by the capacity of printed chips and picture tubes to record, store, and display information at fantastic speeds. As BPA members, we have been made aware by now of computer scheduling and the immediacy of electronic image plotting and enhancement. We cannot afford not to keep abreast of the wave of the future.

In a complex world, an understanding of science and technology must be coupled with an appreciation of humanitarian values. All BPA members, because of their awareness of professional activities in the health sciences, are especially capable of continuing an organization based upon such philosophy.

The bearings of BPA have been charted by cooperative efforts in the past. The need for unity will be even more vital in the years ahead. That which each individual has rendered may have appeared small in relation to the whole. But coming back to our first harbor in Boston for the fiftieth Annual meeting, we can recognize that not a single plank or nail can be left off a worthy craft. The event will afford an opportunity to indulge in retrospection and to plot a course in anticipation of fair sailing.

I hope this account of our history fortifies confidence in the aims of our Association and in the moment of biocommunication and biophotographers.



Group photograph taken at the 1977 Annual Meeting in Baltimore.

## ADDENDUM

### 1980-1981

The preceding history was published in our Journal for the Fiftieth Annual Meeting in Boston, 1980. Now BPA's fiftieth birthday is to be celebrated in 1981 at the meeting in Toronto. So it is fitting to append some notes on the culmination of our first half

century. This can be done most concisely with brief discussions of the two meetings—both of which can stimulate much activity and continuing progress in BPA chapter, organizational, and educational endeavors.

### BPA BOSTON EIGHTY

A noteworthy feature of this event was a preliminary session for exploring ways to consolidate and advance BPA's effectiveness.

#### TASK FORCE ON GOALS

President Renner appointed Wayne Williams to organize a representative group of long-term and new members. They spent three days in a Boston College retreat camp in the woods of Peterborough, New Hampshire. The pleasant isolation was conducive to throughgoing day and evening seminars conducted by manage-

ment consultant, Thomas Nadiello. New ways of thinking were instilled that resulted in a formalized report.

The goals and implementation factors developed at the retreat will serve as a tangible springboard for those who lead and support us in the next 50 years. Accordingly, the goals are put on the record here.

#### *Goal for BPA Administration*

To sustain a governing structure that will support, guide, and implement the efforts of those working towards our goals.

#### OBJECTIVES

1. To elect knowledgeable and diligent officers with insight regarding the needs of biocommunications.

##### Actions:

- a. All members to weigh carefully the background and qualifications of nominees.
- b. Encourage and assist those capable among their peers to engage in BPA duties.

2. The Board of Governors to constitute an adequate and willing committee aggregation.

##### Actions:

- a. Ensure the appointment of suitable committee leaders.
- b. Confine the duties and amount of work to reasonable limits to avoid burdensome tasks.
- c. Direct cooperation and preclude duplicate efforts.
- d. Define committee duties and responsibilities.
- e. Provide meetings and inter-communications to determine progress and guide efforts.
- f. Consider contracting for an Executive Officer.



Task force on goals during "stump conference." This 1980 meeting of about 20 members was convened to address the goals for BPA's second fifty years.



- g. Serve as top-level liaison between committees and the leading professional people served by BPA.
  - h. Generate sufficient funds to run the Association and to minimize deficit budgeting.
  - i. Provide for prompt address list revisions.
  - j. Purchase or lease appropriate equipment and supplies.
3. The Board of Governors to introduce measures to maintain a merited status for bioillustrative practitioners.

**Actions:**

- a. Improve public relations mechanisms.
  - b. Consider the establishment of a professional guild status.
  - c. Investigate salary levels and working conditions, and take steps to ensure equity.
4. The Board of Governors to maintain accessibility by members.

**Actions:**

- a. Ensure adequate cooperation with the House of Delegates.
- b. Assist the House in the selection of practical and economical sites for the Annual Meetings.
- c. Invite suggestions for increasing satisfaction with Association affairs.
- d. Periodically review the actions of the House of Delegates and the Board of Registry to determine their effectiveness in serving the membership.
- e. Keep the membership well posted as to the policies and actions of the Board itself.

### EXPECTATIONS

1. Conducting Association affairs will be smoother and more efficient.
2. The prestige of BPA will be elevated.
3. Member satisfaction will be maintained at a high level.

### *Goal for Chapters*

To modify the chapter structure so as to promote and facilitate the professional competence and advancement of a larger proportion of the membership than at present.

### OBJECTIVES

1. To ensure effective chapter operations.

**Actions:**

- a. By June 1, 1981, the Chapters Development Committee to consult with Chapters and define in writing the duties of chapter officers, the chapter responsibilities to the Parent Association, and Association responsibilities to Chapters.
  - b. By August 1, 1981, the House of Delegates to specify its needs regarding chapter representation.
  - c. The Constitution and By-laws Committee to standardize Constitutional compliance of chapters and to write a prototype set of By-laws requiring the minimum of modifications to suit local circumstances, to be submitted to the Board before June, 1981.
2. Facilitate an increase in the number of Chapters.

**Actions:**

- a. The Chapters Development Committee to review geographic allocations of chapters by June 1981.
- b. Reorganize Chapters to lessen distances required for traveling to chapter meetings.
- c. Investigate and remedy reasons for inactive chapters.



Debi Stambaugh (Iowa State Veterinary College, Ames), Barbara Katzenburg (Pittsburgh Eye and Ear Hospital) and Carol Asimow Gray (St. Joseph's Hospital, Burbank) enjoy a New England seafood feast while chatting about the Boston '80 program.

- d. Print chapter formation procedures and advantages in every issue of the NEWS, beginning in December 1980.

3. Stimulate attendance at Chapter sessions.

**Actions:**

- a. Activate 2a and 2b.
  - b. Beginning by December 1980, emphasize "coming" Chapter program in the NEWS.
  - c. Urge greater utilization of program services offered by BPA.
  - d. Chapters to form a committee for codifying a chapter awards procedure in consultation with the Merit Awards Committee of the House.
  - e. Association President to appoint an ad hoc liaison person to increase involvement with allied societies at the Chapter level, and report by March 1981.
4. Help respective chapter to run Annual Meetings smoothly.

**Actions:**

- a. The Vice-President to prepare by December 1980 a detailed instruction in this respect.
  - b. Clarify BPA help and loans for initiating Annual Meetings.
5. To increase the number of Chapter members who also belong to the Parent Association.

**Actions:**

- a. Membership Committee to consider special incentives for Chapters and for their members.
  - b. All concerned to keep in mind that BPA and Chapter Membership has benefits for each person in an Illustration Service, not just for managers and seniors.
  - c. Categorize and promote awareness of these benefits.
6. Prepare a manual presenting the results of all these actions.

**Actions:**

- a. A committee to be appointed by the President, to present their recommendations to the Recommended Practices Committee by June 1981.
- b. This Committee to incorporate the results into the manual and make it available in 1982.

### EXPECTATIONS

1. Chapters will become more effective.
2. New Chapters can be formed readily as need arises.
3. Chapter Officers will receive more encouragement and support from BPA.
4. BPA will gain new members.

### *Goal for Certification*

To provide a body of recognized professionals by certifying every qualified person in the biological photographic field.

### OBJECTIVES

1. Identify potential number of candidates.

**Actions:**

- a. By January 1981 obtain from Membership Committee a canvass of biocommunicators in biomedical, natural science and allied fields.
- b. Board of Registry will query BPA members and the other individuals so found regarding practical procedures and benefits desired.

- c. Analysis to be done in time for presentation at 1982 Meeting.

2. Evaluate current program.

**Actions:**

- a. Board of Registry to revise logistics and exam procedures to meet current circumstances and future growth. These efforts to start now and to be implemented as an ongoing function.
  - b. Review and update exam content to keep pace with advancing technology and applications.
3. Consider certifying new levels of proficiency.

**Actions:**

- a. Board of Registry to appoint a broad-base (internal and external) committee to determine, via Action 1b, the actual extent of desires that emerge.
- b. To design appropriate program to accommodate new levels if the demand warrants such a move.

### EXPECTATIONS

1. Dramatic influx of candidates entering the program.
2. To increase number of aspirants completing program by 100 percent by 1982.
3. Raise the quality and worth of the Registry.
4. BPA will know whether it is practical to inaugurate new levels.

### *Goal for Education*

To offer educational opportunities to biological photographers to increase their technical and managerial competence.

### OBJECTIVES

1. Continue to sponsor and to improve the workshops in general biophotography, a television and management.

**Actions:**

- a. The Committee on Professional Education is to continue to offer current workshops.
  - b. The Committee on Professional Education will undertake to mount workshops that vary in topic, time and location to meet needs as governed by faculty and economic resources of BPA sponsors.
  - c. Price workshops according to value received.
2. Develop home-study opportunities.

**Actions:**

- a. Produce self-teaching packages for individual study.
  - b. Produce self-testing packages in biophotographic techniques.
3. Aid students in entering educational programs.

**Actions:**

- a. Publish notices of available courses in NEWS, beginning by January 1981.
  - b. Encourage and advise academic institutions regarding the inauguration of formal curricula leading to degrees in fields.
  - c. Make funds available for scholarship aid in biomedical communications instruction through BPA budget allocations and firm repayment of loans.
4. Consider and plan new educational activities.



Will Renner and Martin Scott started the nostalgia evening of the Boston '80 meeting with a cake cutting honoring Kodak's hundredth anniversary and BPA's fiftieth.

#### Actions:

- a. Inject some component of professionalism on each program.
- b. Introduce salon critiques for entrants requesting advice.
- c. Offer oral paper critique (upon individual request).

#### EXPECTATIONS

1. Educational needs of members and field will be met.
2. Increased participation in educational programs will occur.
3. Will have broader topic coverage such as motion media and natural science, ophthalmic, health science, dental, veterinary, agricultural and forestry photography.
4. Educational efforts of chapters and regional meetings will be increased.

#### *Goal for Meetings*

To increase the usefulness of meetings by advancing their informative content and diversity and by increasing attendance.

#### OBJECTIVES

1. To establish an improved mechanism for planning program topics.

#### Actions:

- a. The Vice-President to continue to serve as director of Annual Meetings and to pay particular attention to needs for covering topics on new technologies, applications, and managerial requirements.
  - b. In 1981, Board to appoint Conference Committee with international membership for setting the objectives, consulting past program directors and others.
  - c. By Spring 1981, the President to appoint a Regional Meeting Coordinator for advising those who run such meetings.
  - d. By 1981 Annual Meeting, the coordinator to provide a clearing house for passing information on available programs for Regional planners, and to begin to coordinate the scheduling of meetings to avoid overlaps and conflicts, and to distribute where appropriate.
  - e. Increase the frequency and number of locations for Regional Meetings.
  - f. Recommended Practices Committee to prepare operational manual as described under Chapter proposals (6a) and make it available in 1982.
  - g. By 1981 Annual Meeting set up a plan for organizing a Speakers' Bureau with input from Education and Certification Committees, the BPA *Bugle* Editor, and salon personnel.
  - h. Director of the Speakers' Bureau to keep the Editor of the NEWS posted in adequate time for advance publicity, work out other means to distribute meeting data without duplication and as economically as possible.
2. Plan cost effective meetings.
 

#### Actions:

    - a. Investigate the use of university and public conference facilities and report to the Board at the 1982 Annual Meeting.
    - b. The President to appoint a committee to investigate new formats for Annual and Regional Meetings and report to the Board at the 1982 Annual Meeting.

## EXPECTATIONS

1. There will be better meetings.
2. There will be more Regional Meetings.
3. The cost of attendance will be kept down.

### *Goal for Membership*

To broaden the membership base in terms of numbers, qualifications, competence and recognition.

#### OBJECTIVES (within three years)

1. Identify sources of new members.

##### **Actions:**

- a. Membership Committee to conduct a survey to find practitioners in all fields of biocommunication.
- b. Survey institutional needs.
- c. Determine from survey the present and desired qualifications of practitioners and the immediate and future needs of institutions.
- d. Query attitudes toward joining BPA and reasons for dropping out when this has occurred.
- e. Provide data required by the Board of Registry for certification.

2. Encourage and welcome potential members in visits and/or participation in Association, Regional and Chapter activities.

##### **Actions:**

- a. Membership Committee to institute an internal and external group to insure that all practitioners in photographic and allied illustration and communication fields are reached.
- b. Establish a cross-recognition of common goals in all areas of biological photography.
- c. Promote dual membership when advantageous and practical.

3. Revise membership categories to facilitate attaining goal.

##### **Actions:**

- a. As necessary, amend Constitution and By-laws to permit new membership classes in response to Chapter, Publication, Affiliation and Sponsorship needs.
- b. Codify membership qualifications and privileges more clearly.
- c. Constantly use all the facilities at BPA's command to keep members enthusiastic and loyal.

4. Broaden program and publication content to encourage more active participation in areas of biological photography other than medicine.

##### **Actions:**

- a. Seek journal articles from practitioners in natural science, veterinary and other specialties.
- b. Invite papers and other presentations for Association, Regional and Chapter meetings.

## EXPECTATIONS

1. A 20 percent increase in membership.
2. Fewer dropouts.
3. A richer aggregate of members.



Fritz Goro (left) was presented the Louis B. Schmidt award for 1980 by Don Fritts.

### *Goal for Professional Role*

To maintain the professional level of the biocommunication disciplines.

#### **OBJECTIVES**

1. To make BPA a significant agency for improving and disseminating methods of advancing the applications and value of illustration services.

##### **Actions:**

- a. COPE will improve the knowledge, competency, and satisfaction of BPA members and others in the field through the objectives of those concerned with education.
  - b. By 1984, academic credits will be established for all educational programs.
  - c. By 1981, the BPA Board of Governors will establish a Committee to work out criteria for accrediting the programs of schools teaching biophotography and other phases of biocommunications.
  - d. Officers and Committees will bring to the attention of professional people, in scientific, educational and administrative positions, the aims of our Association and the accomplishments of allied groups.
  - e. BPA activities will be guided by the necessity for emphasizing the ethical responsibilities to clients and other people with whom they deal.
  - f. The BPA Board of Governors will accept the responsibility for encouraging member participation in allied associations and engender other active interest in their programs.
2. To increase the satisfaction and compensation of biocommunicators.

##### **Actions:**

- a. The Association's members will demonstrate the values arising from the efficient production and attitudes of service of experienced biophotographers functioning as professionals.
- b. The quality of illustration will be improved continuously by means of educational instruction, participation in competently judged exhibitions, FBPA achievement, and loan exhibits.
- c. The level of productivity will be raised by publishing data on progressive management and use of modern equipment and processes. Such apparatus will continue to be featured at Annual and Chapter Meetings.
- d. By 1982 the BPA Awards Committee will ensure means for just recognition of achievement.

#### **EXPECTATIONS**

1. BPA will merit stronger leadership in biocommunication disciplines.
2. The field will increase in stature.
3. The professional role and status of biocommunicators will be recognized and rewarded.

### *Goal for Publications*

To fill information needs and to provide publication vehicles for biophotography generally and members specifically.

## OBJECTIVES

1. To make the *Journal of Biological Photography* recognized as the leading source of information on the techniques, production, and application of photographic and related imagery for biocommunication in the medical, natural science and allied fields.

### Actions (ongoing unless dated):

- a. Broaden the scope and usefulness of the *Journal*.
  - b. All members to alert the Editor to sources of papers that implement Objective 1.
  - c. These chairing all programs to actively solicit the submission of papers from pertinent programs.
  - d. To provide a rewrite service for those not experienced in writing.
  - e. To prepare a brochure for program personnel to send to speakers (May, 1981).
  - f. Publish tutorials—Laboratory Photography (1981); Cinematography (1983); Television Methods (1984).
  - g. Appoint section editors as needed.
  - h. Expand editorials—"Point of View" from NEWS; guest columns on trends, attitudes, and philosophies.
  - i. Reactivate features—Abstracts (1981); Shoptalk (1982); Technotes, particularly from Chapters.
  - j. Adapt Constitution to permit listing Schmidt Laureates, Fellows, Major Awards, and the Registry once a year only.
  - k. Increase number of subscriptions to non-members. See particularly 1a; 1f; 3b; 3d; 3e.
  - l. Support Editor with staff (immediately).
2. Strengthen interest and impact of the BPA NEWS.

### Actions:

- a. Members to supply Editor with more items.
  - b. Develop a diligent network of chapter correspondents (1981).
3. Continue needed publication programs.
- ### Actions:
- a. Revise and reissue "Biophotography" for photographers to meet demand.
  - b. Prepare a "showpiece" brochure on the role of BPA and the value of RBP in bioscientific communication for Educators, Administrators, Researchers, Bioscience Editors, Secretaries of Bioscientific Societies, and Chiefs of Illustration Services (1982).
  - c. Continue BPA *Bugle* (yearly in April). Increase advertising in it.
  - d. Consolidate, update and disseminate Cumulative Indices.
  - e. Publish report of 1980 President's Task force on Goals in NEWS (1980).

4. Standardize printed materials.

### Actions:

- a. Establish BPA logo and style format for all publications; chapter newsletters and meeting notices; stationery.
5. Sometime in the future investigate the feasibility and demand for a BPA book on biophotography.

## EXPECTATIONS

1. To establish BPA as the leading authority and supplier of information on all phases of illustrative biocommunications.

## THE ANNUAL MEETING

In addition to an eminent technical program, nostalgia was a special theme of the meeting. Older members gathered in force for the events and for participation in some of the paper sessions. Long-time friend Harold Edgerton traced the history of electronic flash techniques. *Life* and *Scientific American* photographer Fritz Goreau was the 1980 Louis Schmidt Laureate. A selection of former prize winning prints graced the Salon.

One evening was devoted to reminiscing. Dick Matthias projected a collection of slides of members gathered over the years—with amusing captions so that new members could also enjoy the presentation. Photo albums depicting scenes from past meetings were put on display by historian Al Levin. Humorous BPA anecdotes were recounted by Don Fritts, Stanley McComb, Howard and Leah Tribe, and myself.

The evening was topped off with a magnificent cakes-and-champagne party given by the Eastman Kodak Company. This was a genial episode, because Kodak was commemorating its hundredth anniversary. So Will Renner and Martin Scott ceremoniously cut the first cake together.

Nostalgia was not the only spirit pervading the 50th Annual Meeting. Good auspices for the future were apparent from the technical awareness and professional eagerness shown by the predominantly young attendance among the 485 who came to the meeting. The participation of new members in the salon and technical program was gratifying. Thirteen Registered Biological Photographers were certified for 1980. There was no shortage of new aspirants to Association and Chapter posts and activities.

## TECHNICAL PROGRAM

It is not practical here to go into detail regarding the working sessions of the meeting. A wide variety of papers covered topics ranging through electronics, advanced photomicrography, multi-image techniques, endoscopy, ophthalmology, documenting child abuse, plastic surgery, fire-safety research, veterinary applications, a Loch Ness expedition, natural science projects, to creativity and communication.

History was an appropriate topic for this meeting. Martin Scott chaired an afternoon papers program covering the technical and applicational aspects of the evolution of biophotography.

A timely series of eight seminars drew attentive participants. The topics were as follows:

**Ophthalmic photography**—Harry Kachadoorian, CRA

**Computer graphics**—John Galinato

**Clinical photography and videography**—Dale R. Wickberg and William R. Riley

**Lenses, filters, photomicrographic exposures, ultraviolet and infrared techniques**—Ernst Wildi

**Silver recovery and energy conservation**—Larry Roney, A.I.A.

**Multi-image exposition on lighting**—Dan R. Patton, RBP

**Photolab design**—Gerald McVey, Ph.D.

**Human side of management**—Dr. Richard Byrne

### Panel of Judges, 1980 Exhibition

Kevin Donovan  
Wynn Eastman, RBP  
Lou Gibson, RBP  
Martin Gordon, MD  
Harold Hadaya, MD  
Charles Haine, OD  
Lester Luntz, DDS  
George Tannis, RBP

Poster sessions too, continued the current trend in dispensing information. They dealt with the following aspects of the biophotographer's activities:

Photo silk screens; Robert Littlefield

Intraoral photography; Joseph P. Summa, Gregory A. Kriss and Timothy R. Smith

A portable studio; Paul Zuckerman

Economy slide production; Wesley H. Buth

Mathematical uses of calculators; Ron J. Murray, RBP

Darkfield illumination for photomicrography; Gregory A. Kriss

An efficient poster module; Ron Sokolowski

Photographic reproduction of autoradiographs; Michael Paulson and Larry Repp

Mural prints for posters; Judith Little-Webb

Industrial photocopying; Leigh T. Whittmore

### President's Service Award\*

|   |      |
|---|------|
| Percy Brooks, RBP, FBPA, and John Vetter, RBP, FBPA | 1977 |
| Stanley McComb, RBP, FBPA, and Florence McComb      | 1979 |
| H. Lou Gibson, RBP, FBPA                            | 1980 |

\* Changed in 1980 to the Ralph Creer Service Award



Some of the leaders of BPA in the early years gathered at the 50th meeting for a photograph. Front row—Graham Eddy, Chester Reather, Anne Shiras, Jane Waters Couch, Marie Lindberg, Al Levin. Back row—Sidney Shapiro, Lou Gibson, Joseph Poppel, Howard Tribe, Tom Lannon, Stan McComb, Charles Griner.



Robert Littlefield with his poster session on silk screen applications.



Ron Murray, RBP, talks computers with a colleague in the commercial exhibits area.





Boston, Massachusetts, July, 1980. Group photo by Zuhair Kareem.

## honors

### Louis Schmidt award recipients

- |                                       |                                    |   |
|---------------------------------------|------------------------------------|---|
| 1948—Leo C. Massopust, FBPA*          | 1959—Paul H. Holinger, MD, FBPA*   | 1970—Verlin Y. Yamamoto, RBP, FBPA        |
| 1949—Anne Shiras, FBPA                | 1960—H. Lou Gibson, RBP, FBPA      | 1971—Stephen P. Dittmann, RBP, FBPA*      |
| 1950—Stella Zimmer, FBPA              | 1961—Warren Sturgis, RBP, FBPA     | 1972—Clifford L. Freehe, RBP, FBPA        |
| 1951—Ralph P. Creer, FBPA             | 1962—Stanley J. Mc Comb, RBP, FBPA | 1973—Stanley Klosevych, RBP, DpIRMS, FBPA |
| 1952—Leonard A. Julin, RBP, FBPA*     | 1963—Marla E. Ikenberg, RBP, FBPA  | 1974—Roger P. Loveland, FBPA              |
| 1953—Oscar W. Richards, PhD, FBPA     | 1964—Peter Hansell, MD, RBP, FBPA  | 1975—E. Lynn Baldwin, RBP, FBPA           |
| 1954—Ferdinand R. Harding, RBP, FBPA* | 1965—Howard E. Tribe, RBP, FBPA    | 1976—Charles P. Hodge, RBP, FBPA          |
| 1955—C. Graham Eddy, FBPA             | 1966—John V. Butterfield, FBPA     | 1977—Lardner A. Coffey, RBP, FBPA         |
| 1956—Mervin W. La Rue, Sr., FBPA*     | 1967—not awarded                   | 1978—John P. Vetter, RBP, FBPA            |
| 1957—Lloyd E. Varden, RBP, FBPA*      | 1968—Chester F. Reather, RBP, FBPA | 1979—Donald H. Fritts, RBP, FBPA          |
| 1958—Albert Levin, RBP, FBPA          | 1969—Laurence B. Brown, RBP, FBPA  | 1980—Fritz W. Goreau, FBPA                |

### Fellows of the association

- |                            |                           |                                |                           |
|----------------------------|---------------------------|--------------------------------|---------------------------|
| Robert F. Albright, RBP    | Luther R. Gilliam, RBP    | Wilfred Lee                    | Henry Roger               |
| John W. Alley              | Fernando G. Gonzales, RBP | Leonard Lessin                 | Nile Root, RBP            |
| Douglas C. Anderson, RBP   | Fritz W. Goro             | Henry M. Lester*               | George L. Royer, MD       |
| John R. Arnold, DC         | Eric Gravé                | Albert Levin, RBP              | Lucien St. Laurent, RBP   |
| Harold C. Baitz, RBP       | Nicholas M. Graver, RBP   | Charles Lindsay*               | Martin L. Scott           |
| E. Lynn Baldwin, RBP       | Alex Gravesen, RBP        | Roger P. Loveland              | Sidney Shapiro, RBP       |
| Fred S. Beal               | David E. Gray, RBP        | Wilbour Chase Lown, RBP        | Anne Shiras               |
| Alfred Benjamin            | Julius Halsman            | David Lubin, RBP*              | Paul J. Showstark, RBP    |
| Percy W. Brooks, RBP       | Edward Hamilton           | Raymond E. Lund, RBP           | Robert F. Sisson, RBP     |
| Laurence B. Brown, RBP     | Allen Hancock             | Adolph Marfaing                | Herbert Smith, Jr.        |
| Robert A. Brown, RBP*      | Peter Hansell, MD, RBP    | William L. M. Martinsen, RBP   | Robert F. Smith, RBP      |
| Charles G. Brownell, RBP   | Leonard Hart, RBP         | Thomas S. Masterson, RBP       | Rose Marie Spitaleri, RBP |
| James E. Brubaker          | Frank H. Heck, Jr.        | I. L. Matlovsky, RBP           | William Stevenson         |
| Joseph D. Brubaker         | Antol H. Herskovitz, RBP  | Richard C. Matthias, RBP       | Warren Sturgis, RBP       |
| John V. Butterfield        | Jerry Hinkes              | John A. Maurer, RBP            | George N. Tanis, RBP      |
| Peter N. Cardew            | Charles P. Hodge, RBP     | Stanley J. Mc Comb, RBP        | William J. Taylor, RBP*   |
| Ronald M. Christopher, RBP | Paul H. Holinger, MD*     | Luvenia C. Miller, RBP         | Robert Teevan             |
| Lardner A. Coffey, RBP     | Nathan S. Horton          | Paul K. Miller, RBP            | Dale A. Tilly, RBP        |
| Ralph P. Creer             | Thomas P. Hurtgen         | Joseph E. Mineo, RBP           | James F. Todesco, RBP     |
| Jane Waters Crouch         | Dorothy P. Hyland, RBP    | Frank G. Minnello, RBP         | Howard E. Tribe, RBP      |
| Margaret G. Cubberly, MS   | Marla Ikenberg, RBP       | Benjamin D. Morton, Jr., RBP   | Patricia M. Turnbull      |
| William H. deVeer, RBP     | Ronald F. Irvine, RBP     | Foster E. Moyer, RBP           | Harris B. Tuttle          |
| Stephen P. Dittmann, RBP*  | H. Ross Jackson, RBP      | John C. Muldowney, RBP         | Thomas Uithoven           |
| Hans S. Dommasch, RBP      | David Jefferies           | H. Paul Newman, RBP            | John P. Vetter, RBP       |
| S. C. Dunton, RBP*         | Fred W. Kent              | Louis W. Nichols, RBP          | Roman Vishniac            |
| Wynne Eastman              | Stanley Klosevych, RBP    | Robert Ollerenshaw, MD, RBP    | Julius Weber, RBP, DSchC  |
| C. Graham Eddy             | Lewis Willem Koster, RBP  | William F. Payne*              | Carroll H. Weiss, RBP     |
| Charles P. Engel, RBP      | Joseph Kozicki            | Leonard L. Perskie             | Robert H. Whitehead       |
| Louis A. Facto, RBP        | Anthony M. Kuzma, RBP     | Arthur W. Proetz, MD*          | Robert John Whitley*      |
| Jack Fason, RBP            | Alfred T. Lammé, RBP      | Richard H. Ray, RBP            | Wayne C. Williams, RBP    |
| Louis Paul Flory*          | Victor R. Landi, RBP      | Chester F. Reather, RBP        | John E. Withee, RBP       |
| Clifford L. Freehe, RBP    | Thomas J. Lannon, RBP     | Frank J. Reindl, RBP           | Verlin Y. Yamamoto, RBP   |
| Donald H. Fritts, RBP      | Joseph T. Lappan, RBP     | Wilmer E. Renner, RBP          | Donald M. Yeager, RBP     |
| Marianne Gaettens          | Leon J. LeBeau, PhD       | Lawrence R. Reynolds, Jr., RBP | Wolfgang Zieler*          |
| Terry W. George, RBP       | Maurice Le Cover, RBP     | Oscar W. Richards, PhD         | Stella Zimmer             |
| H. Lou Gibson, RBP         | Pierre J. Le Doux*        | Maurice N. Richter, MD         |                           |

Members may propose for Fellowship in the BPA other members whom they consider worthy of recognition. To be eligible for Fellowship a candidate must have been an active member of the Association for five consecutive years, and must have meritoriously contributed to the advancement of biological photography by having demonstrated superior abilities in the production of still and motion picture photographs of biological subjects, or research in photographic methods, or instrumentation. A submission of evidence is required.

\* Deceased

Two sponsors are needed, one of whom must be a Fellow. The sponsors should be well acquainted with the candidate's work and ready to furnish the Board with details of his experience and achievements. Those who wish to sponsor a member whom they believe to be eligible should request a Fellowship application form from the Secretary of the Fellowship Committee: Albert Levin, RBP, FBPA, 22 Park Avenue, River Forest, Illinois 60305

## Registered Biological Photographers (RBP)

*the certification program*

The Board of Registry of the Biological Photographic Association examines and certifies qualified biophotographers. After successfully completing written, practical, and oral examinations, the photographer is certified as a Registered Biological Photographer (RBP). The Certification Program, designed to raise professional standards and to provide criteria for those interested in employing qualified biophotographers, was established in consultation with several American

and Canadian medical associations.

Biophotographers who have been certified up to this date as Registered Biological Photographers (RBP's) are listed below. More information about the Certification Program can be obtained by writing to the Executive Secretary of the Board of Registry, David S. Hansen, RBP, Scott and White Memorial Hospital, 2401 South 31 Street, Temple, Texas 76501 (817) 774-2249.

- Albright, Robert F.  
Allan, Garry W.  
Anderson, Douglas C.  
Asimow, Carol  
Atkinson, William H.
- Bailey, Charles M.  
Baitz, Harold C.  
Baldwin, E. Lynn  
Baumann, Merril G.  
Bawden, Eric J.  
Bellows, Robert B.  
Benjamin, Alfred  
Blaker, Alfred A.  
Blikenstaff, John E.  
Bolleter, M. Wayne  
Bowden, Arthur J.  
Bowerman, Leland M.  
Bowman, Raymond C.  
Brook, Gerald A.  
Brooks, Percy W.  
Brown, Laurence B.  
Brown, Robert A.  
Brownell, Charles G.  
Brunings, Martha M.  
Buckley, Kenneth  
Burch, J. Lindsey  
Burns, Thomas G.
- Caliendo, Marilee  
Carter, Richard F.  
Cheney, Maynard C.  
Christenson, LeRoy P.  
Christopher, Ronald M.  
Clark, Richard L.  
Cockerill, James W.  
Coffey, Lardner A.  
Conde, Theodoro M.  
Crawford, J. Richard
- Dant, J. Robert  
David, Robert E.  
Davis, Gene K.  
Davis, S. Jack  
deBlois, John D.  
deBruin, Jack P.  
Deutsch, Charles J.  
deVeer, William H.  
Dillard, Albert E.  
Dittman, Stephen P., Jr.  
Dodge, Timothy P.  
Dommasch, Hans S.  
Dunton, Samuel C.
- Eastman, Wynne S.  
Edwards, Otis T.  
Ehlin, Marvin  
Ehrlich, Sam G.  
Engel, Charles E.
- Facto, Louis A.  
Fason, Jack  
Fischler, Herbert A.  
Flora, Kenneth  
Ford, John E.  
Ford, Homer D.  
Ford, Robert J.  
Francis, Charles E.  
Freehe, Clifford L.  
Friedman, Harold  
Fritts, Donald H.
- Garneau, Jean  
Gaughan, John A.  
Gauthier, Garreth  
Gauthier, John M.  
George, Terry W.
- Gero, Andrew J.  
Giannavola, Samuel  
Gibson, Daniel A.  
Gibson, H. Lou  
Giguere, Marc  
Gilliam, Cecil D.  
Gilliam, Luther R.  
Gjersvik, Torleif  
Glaser, Jane K.  
Glazier, Ralph M.  
Glore, James F.  
Gonzalez, Fernando G.  
Goodman, Leo  
Graver, Nicholas M.  
Gravesen, Alex A.  
Gray, David E.  
Greenberg, Wilfred  
Greenwood, Paul C.  
Gushul, Evan T.
- Halpern, Steven  
Hansell, Peter  
Hansen, David S.  
Harding, Ferdinand  
Hart, Leonard M.  
Heard, Gloria J.  
Heitlinger, Lester  
Helmer, Norman C.  
Henning, Rudolph J.  
Herskovitz, Antol H.  
Hetmanski, Kenneth F.  
Hibrand, David  
Hodge, Charles P.  
Hootnick, Harry L.  
Howze, T. Mark
- Ikenberg, Maria  
Irvine, Ronald F.
- Jackson, H. Ross  
Jacobson, Marjorie E.  
Jerry, Norman L.  
Johnson, Melvin P.  
Johnson, Paris C.  
Joseph, Edward A.  
Julin, Leonard  
Junor, John M.
- Kantor, Nathan C.  
Karraker, Robert O.  
Kendrick, James P.  
Kennedy, Dale  
Kerr, Carol E.  
Kilbourne, Charles S.  
Kindell, William A.  
Klosevych, Stanley  
Kondreck, Martin  
Konikiewicz, Leonard  
Koster, Lewis W.  
Kostuk, Kenneth P.  
Krzemien, Leon J.  
Kulmann, Richard W.  
Kuykendall, John D.  
Kuzma, Anthony M.
- Landi, Victor R.  
Lanier, Thomas W.  
Lannon, Thomas J.  
Lappan, Joseph T.  
Larsson, Carl G.  
LaRue, Mervin, Sr.  
Lawton, Edwin A.  
Leapley, McKinley  
LeCover, Maurice  
Lee, Wilfred  
Levin, Albert  
Levy, David W.
- Liesner, Karl H. F.  
Little, Frank David  
Little, Robert D.  
Lopez, Richardo F.  
Lown, Wilbour C.  
Lubin, David  
Lund, Raymond E.  
Luther, Jerry D.
- Maciejewski, T. V.  
Mallory, Francis C.  
Maradik, Michael A.  
Marquardt, Wlatter G.  
Marshall, Margaret  
Martinsen, William L. M.  
Masterson, Thomas S.  
Matlovsky, I. Lloyd  
Matthias, Richard C.  
Mauer, John A.  
Maxcy, Gordon W.  
McClure, Richard G.  
McComb, Stanley J.  
McCormick, James F.  
McDermott, Eugene  
McGregor, Kenneth N.  
McKim, James W.  
McWilliam, Leslie H.  
Medcalf, Peter L.  
Mentrikoski, Joseph  
Merin, Lawrence M.  
Miller, Luvenia C.  
Miller, Paul K.  
Minello, Frank G.  
Mineo, Joseph E.  
Momchilov, Cindy S.  
Moore, Bernard J.  
Moore, Clark D., Jr.  
Morton, Ben D., Jr.  
Moyer, Foster E.  
Mucha, Alex V.  
Muldowney, John C.  
Murray, Ronald J.
- Newby, John R.  
Newman, Donald A.  
Newman, H. Paul  
Novarro, Julio  
Nichols, Louis W.  
Nyberg, William Carl
- Ollerenshaw, Robert  
Oswald, Raymond M.
- Palkuti, Gabriel A.  
Parker, Gordon H.  
Patton, Dan R.  
Peck, Virginia A.  
Pedigo, Louis S.  
Pepin, Ada M.  
Pickett, Morris J.  
Pinkham (Hyland) Dorothy M.  
Poppel, Joseph  
Poynter, Frank J.
- Raddatz, Mary  
Raphael, Henry M.  
Rapp, James H., Jr.  
Ratajczak, Stanislaw B.  
Ray, Richard H.  
Reather, Chester F.  
Reindl, Frank J.  
Reiner, Charles G.  
Reis, George W.  
Renner, Wilmer E.  
Reynolds, Lawrence R., Jr.  
Richter, Harold H.  
Root, Nile
- Rudnicki, Ludwik  
Ruffcorn, Wayne G.  
Russell, Anne
- St. Laurent, Lucien R.  
Salb, Bernard F.  
Sampley, Stephen R.  
Scott, James R.  
Scott, Richard C.  
Shapiro, Sidney  
Sharp, Frederick T.  
Sherrill, Claude, Jr.  
Shockey, Stanley A.  
Showstark, Paul J.  
Silver (Facto), Helen  
Sisson, Robert F.  
Slone, Harold E.  
Smialowski, Arthur  
Smith, Robert F.  
Smith, William G., Jr.  
Spitaleri, Rose Marie  
Spitzer, Alfred M.  
Stambaugh, Debi  
Stanley, Gordon  
Stephenson, Wade E., Jr.  
Stokes, Marshall  
Stringer, John T., Jr.  
Strong, Hal M.  
Sturgis, Warren  
Sullo, Francis Joseph
- Tanis, George N.  
Taylor, William J.  
Thomas, Harold A.  
Tilly, Dale A.  
Todesco, James F.  
Tribe, Howard E.  
Tuller, Roy  
Turkington, Barbara L.  
Turner, Robert C.
- Udall, Carl A.  
Upenieks, Harry
- Vetter, John P.  
Vick, Robert E.
- Waddell, Boyd  
Waldeck, Robert F.  
Wallace, Francis D.  
Walzer, John S.  
Watson, Robert G.  
Webb, Terry L.  
Weber, Julius  
Weinberg, Allen E.  
Weinreb, Stanley  
Weiss, Carroll H.  
Weiss, Saul M.  
White, Maxine P.  
Whitman, J. Douglas  
Willoughby, David C.  
Willard, Floyd L.  
Williams, Wayne C.  
Wipplinger, Walter  
Withee, John E.  
Wolf, Robert D.  
Wong, Donald  
Wood, Kent  
Wood, Robert B.  
Wood, Thomas L.
- Yamamoto, Verlin Y.  
Yeager, Donald M.
- Zoccolillo, Helen Y.

## SPECTRUM '81

Since this book was designed for distribution at the jubilee meeting in Toronto it is only possible to present some of the advance information furnished by those chairing exhibition and general committees. James M. Atkinson, of the Sunnybrook Medical Centre, Toronto, and Roy V. Cooke, of the Hamilton Civic Hospitals, worked on the Salon and Cine Exhibition. Christine Pawlik, of Weston, Ontario, and Ron Irvine, of Queen's University, Kingston, were General Co-Chairpersons. John Hendrix, P.E.R.C., Toronto, supplied the accompanying outline of the technical program.

A goodly number of salon illustrations and cine and video entries were received. It was evident that interest in the annual exhibition is being maintained. In keeping with BPA's aim to include judges knowledgeable in photography and health and natural sciences, a versatile international panel of judges was selected. They were able to pick an excellent cross section of bioillustration.

### TECHNICAL PROGRAM

The following summary of technical activities and papers indicates a fitting climax to 50 years of significant BPA contributions to bioillustration and education.

The name Spectrum '81 was chosen because it was desired to feature the wide range of energy channels that have opened up for illustration and communication in the biological sciences.

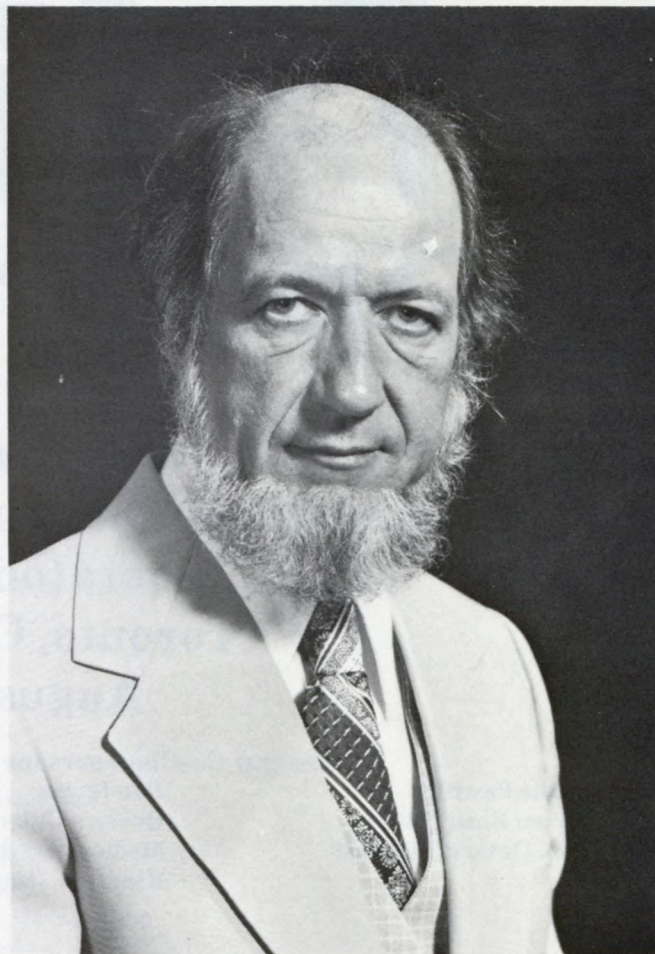
Lorraine Monk accepted our invitation to develop this theme in a keynote address. She is to be remembered for the copiously illustrated books she has edited—especially those published on the occasions of Canada's Centennial and the bicentennial celebration in the USA. She is now the Director of the Canadian Museum of

Photography in Ottawa. She is uncommonly aware and appreciative of the contributions made by biological photography.

The Program Committee, headed by John Hendrix, has arranged for workshops and papers dealing with the applications, philosophies, and techniques over a gamut of about 20 diverse topics.

Broad vistas for the future will open up at the Birthday Party, held in the revolving dining room atop the world's tallest structure—the CN tower.

When President Larry Reynolds blows out the 50 candles in Toronto, it will be manifest that BPA's wish to continue as a leader in biomedical communication is going to be fulfilled.



Lawrence Reynolds, RBP, FBPA—President-Elect

### Panel of Judges, 1981 Exhibition

Dr. M. Barkin (Toronto)  
 Dr. Peter Cardew (London, England)  
 Lou Gibson, ABP, FBPA (Rochester)  
 Charlie Hodge, RBP, FBPA (Montreal)  
 R. H. Irvine, RBP, FBPA (Kingston)  
 Dr. C. B. Mueller (Hamilton)  
 Kenneth Post (Mississauga)  
 Dr. H. Shulman (Toronto)



# Spectrum 81

51st Annual Meeting  
 Biological Photographic Association, Inc.  
 Sheraton Centre Hotel  
 Toronto, Ontario, Canada  
 August 8-13, 1981

Christine Pawlik  
 330 Dixon Road #1401  
 Weston, Ontario M9R 1S9

General Co-Chairpersons  
 Ron Irvine  
 Queen's University  
 Medical Art & Photography  
 Kingston, Ontario K7L 3N6

Programme Chairperson  
 John Hendrix  
 P.E.R.C.  
 60 Grosvenor Street  
 Toronto, Ontario M5S 1B6

**Technical Program—Spectrum 81—51<sup>st</sup> Annual BPA Meeting****MONDAY AFTERNOON**

- **Scientific Photography—Keynote Address**—Lorrain Monk
- General papers

**TUESDAY MORNING****Endoscopy**—Barbara Katzenburg (Moderator)

- Photography with the OR Scope—C. Scott Kilbourne, RBP
- Cinematography in Otolaryngology—Norman D. Rabinovitz and Sylvan Stool, M.D.
- Laryngeal Photography and Videotape Recording Using the Nagasakima Rigid Telescope—Eiji Yanagisawa, M.D.
- Photography Through the Hysteroscope—Diana Klinedon and Krishna B. Singh, M.D.

**Current Session****Gadgets and New Ideas**—James Atkinson (Moderator)

- Basic Photochemistry—Sam Giannavola, RBP
- Resolution and Acutance—Optimizing Their Parameters—Jerry McCollum and Kenneth Porter
- Xrays to Prints—A Timesaving technique—Bruce Tawse
- Bound-in Photographs for High Quality Reproduction of Radiographs—Thomas P. Hurtgen
- Photographic Serendipity—Ted Conde, RBP
- Microcomputer Literacy in Biomedical Communications—Nile Root, RBP, FBPA
- The Calculating Biophotographer—Ronald J. Murray, RBP

**TUESDAY AFTERNOON****The Studio**—Dan Patton, RBP (Moderator)

- Portrait Techniques—Basic Lighting and Positioning—Gloria Head, RBP
- Photography of Biomedical Tiny Reflective Objects—Leon J. LeBeau, PhD.
- Medical Photogrammetry—Current Alternatives—Robin Williams
- Lighting for Biological Subjects—Lawrence Reynolds
- Use of Pin-Registered Cameras in the Photography Studio—Dan Patton

**Concurrent Session****Audiovisual**—Jerry O'Neill (Moderator)

- Creative Slide Techniques—Kate Adams, Carroll Waldrop and Ursula Ziolkowski
- Application of an Affordable Graphic Arts Computer in Illustration and Photography—Leonard W. Konikiewicz, RBP
- Transparencies with a True Black—Thomas Prost
- Special Effects Slides from Unsophisticated Equipment—Melina Vratny
- RF Distribution within an Existing Hospital TV System—Eric Bawden, RBP

**WEDNESDAY MORNING****Clinical and OR Photography**—Eric Bowden RBP (Moderator)

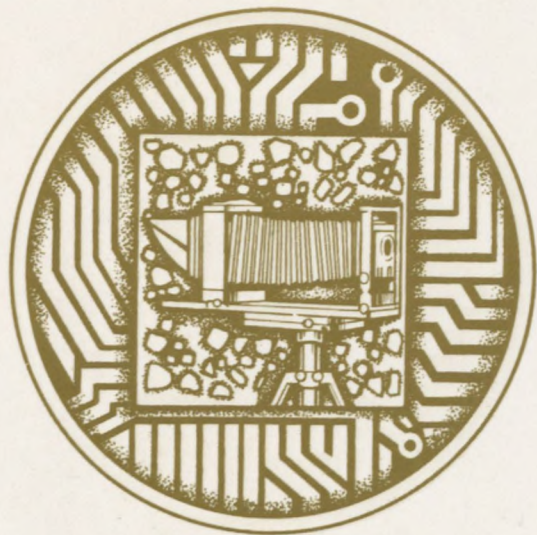
- Monochromatic Light Fundus Photography—Sheldon Dukoff, CRA
- Infrared Transillumination—Richard Morton
- Protecting the Patient's Right to Privacy—Michael Tarcinale
- Intensification Cinematography of Fluorescence Cells—James A. Sullivan
- The Importance of Critical Color Balance in Hematological Photomicrography—Lawrence Bowden
- Computer Assistance in Optimum Lens Setting—David Stephenson

**WEDNESDAY AFTERNOON**Seminar—**Communication Styles**—Wayne Langlois**Concurrent Session****Forensic and Natural Science Photography**—Donald Fritts (Moderator)

- Lazer Detection of Fingerprints—Brian Dalrymple
- Infrared Investigation of Velazquez Paintings—Andrew Davidhazy
- Photography of Sequences in Animal Behavior—Jeffery Demian
- Electronic Flash Techniques in Natural Science Photography—George Lepp
- Evidence Photography during the Forensic Autopsy—Paul Moskvín

**THURSDAY MORNING**

Tour of Cinesphere



Commemorative Medallion  
Boston, Massachusetts  
July, 1980