

Remarks on the origins of the *Biophysical Journal*

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Last December I was delighted to receive a letter from Editor Tom Thompson stating that “the year beginning January 1, 1990, will mark the 30th anniversary of the founding of the *Biophysical Journal*.” Since an anniversary denotes the yearly recurrence of the date of a past event, I have tried to define just what event Tom had in mind, and of course this led me to think of events and persons involved in this accomplishment. Since this material seems to be new to many of the present members of the Biophysical Society, I would like to review it for you.

THE FIRST NATIONAL BIOPHYSICAL CONGRESS AND THE TEMPORARY ORGANIZATION

The founding of the Biophysical Society is described in about 200 words in the Directory. A somewhat longer summary of the 1957 Columbus, Ohio meeting is E. C. Pollard's 1,100 word foreword in the “Proceedings of the First National Biophysics Conference” (1). I wish to discuss some of the problems of the Temporary Organization, and paint a picture of events that I believe determined the actions of the Temporary Organization of the Biophysical Society, the Governing Council, and Officers in the period between this Columbus meeting and the Philadelphia meeting in 1960; the period required to bring the *Biophysical Journal* into being. Appendix I shows the composition of this Council, and points out some errors in the Directory of the Society.

The attendees at the Columbus and Cambridge meetings of 1957 and 1958 represented a broad class of biophysicists, medical physicists, and biomedical engineers. The business meetings were held under the rules of a New England town meeting (but without any defined membership qualifications). Max Lauffer kept the meeting under control, and I think nearly all attendees went away with the feeling that they were fairly treated. It was up to the Temporary Council and Officers to maintain this feeling. But no society could meet all of the demands of as heterogeneous a group as was first assembled. The aspirations of persons like H. O. Schmitt and S. A. Talbot to

have most biomedical engineers and medical physicists feel at home in the Biophysical Society were not realized, and some of the charter members of the Society dropped out. Studies of early membership lists suggest that 15% of charter members and 23% of those giving contributed papers had dropped out by 1964. (Indeed, 15% of these papers do not have an author in the 1959 Directory, the first printed by the Society).

The formation of a Society-sponsored publication was an important consideration in the minds of many of the attendees at that first conference. The fact that the Rockefeller Press only appeared in the negotiations of the Council and Executive Board in the fall of 1959 has been puzzling to me for some time. I probably knew more about it at that time, since I was one of the two candidates proposed as the first Editor. (A number of potential candidates for the Editor appear in certain Executive Board minutes: I find mention on May 18, 1958, of R. B. Roberts, A. Rich, and W. A. Rosenblith, perhaps as a trio; F. Brink, K. S. Cole, and M. A. Lauffer were mentioned January 10, 1959; at the October 17, 1959 meeting F. Brink and J. L. Oncley were named. I believe all other candidates were privately contacted, without advertisement.) I do remember that I was told by the Publications Committee that Frank Brink would almost certainly be selected as Editor, but that they were required to send the Council a ballot bearing two names plus a space for open nominations. At the present time, I only remember that the proposal of the Rockefeller Press came to us on October 17, 1959 when the Executive Board, of which I was a member, met in Art Solomon's office at Harvard Medical School and voted to accept the Press offer.

Walter A. Rosenblith was elected to the Temporary Council of twenty that was to govern the formation of the Biophysical Society, and was a member of the Executive Board and Chairman of the Publications Committee until February 1959. He then served an additional two years on the Council, and as Chairman of the Publications Committee for the first of these years. This covers the entire period of the negotiations for a publisher of the *Biophysical Journal*. Others serving on this committee are listed in Appendix II.

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Actions at Annual Business Meetings (omitting some reports at intermediate Council Meetings and Executive Boards) pertaining to the establishment of a journal for the society were as follows:

March 5, 1957: Rosenblith moved "that the Temporary Council be instructed to consider a report at the next meeting on questions of affiliation with other scientific bodies and the questions of publications by the Society." The motion was passed.

February 5, 1958: At this point, Rosenblith had learned that the American Institute of Physics was not in a position to publish a biophysical journal, that the Trustees of the American Physiological Society would publish such a journal, but not on very favorable terms (four issues a year, at higher cost). He also had preliminary proposals from Pergamon and Academic Press. "A strong favorable vote of the Council members in attendance proposed that the Society be asked to give the Council *carte blanche* in coming to a firm contract with some publishing house during the ensuing year. As you will recall, this action was abortive; Society members in some number seemed unwilling to take this step without a knowledge of more details. The motion was effectively withdrawn (by tabling), but in order to make some use of the opinions of those attending the meeting, a straw-vote was called for on the question as to whether the members wanted the Society to have some form of official publication. The result of the show-of-hands indicated (at least to me) that the members were sufficiently favorably inclined to indicate to the Council that it had received a mandate to pursue its publication plans at the very least. My own feeling is that the mandate also extended to the requirement that the Council make a formal decision before the next meeting, as to whether or not it would bring before the Society a well-documented plan for final approval." (R. C. Williams' letter to the members of the Council entitled "Problems of a Journal," September 22, 1958.)

February 26, 1959: At this point the Publications Committee and the Executive Council had reviewed firm proposals from Elsevier, Pergamon, Academic Press, and Interscience, and copies of the proposal by Academic Press were circulated to all members. The exact working of the Council motions as recorded in the minutes of February 24, 1959 may be worth reviewing: moved and carried that we submit to membership the proposal of Academic Press, as an example of minimum conditions acceptable. Moved and carried to approve in principle a motion to the Society by Dr. Rosenblith to the effect that: (1) The Society authorize the Council to conclude negotiation for a publication. (2) The proposal by Academic Press represents minimum acceptable terms for assignment. (3) The Council is authorized to conclude an

equivalent appointment with another firm, if circumstances warrant that step.

Rosenblith presented the following Resolution to authorize the Council to contract to publish a Society journal. He reviewed the principles incorporated in the offers, and the responsibilities involved:

"Whereas the Council of the Biophysical Society (pursuant to Article IV of the by-laws) has, by a two-thirds majority, authorized the Biophysical Society to enter into an agreement with others for the purpose of publishing a journal of the Society,

Whereas the Council has accepted the terms of the proposal submitted by Academic Press as a minimum basis for negotiations designed to lead to such an agreement,

Whereas the Council deems it necessary to have freedom to negotiate details of a satisfactory contract on the basis of the proposal submitted or its substantial equivalent, be it hereby resolved that the membership of the Biophysical Society, assembled in its 1959 Annual Business Meeting, authorizes the Society to enter into an agreement with others to publish a journal of the Society."

This resolution was passed by the vote: 159 yes, 2 no, 10 abstaining. The actual Council action referred to and passed by a two-thirds majority by mail vote, and by action of all Council members present at the Annual meeting was as follows:

"It is moved that the Council of the Biophysical Society approve the publication of an official journal based on the following three principles:

- (1) The Society will exercise full editorial control over the journal through the intermediary of an editorial board.
- (2) The Society will assume no fiscal responsibility for the journal.
- (3) Subscription to the journal is to be optional for Society members.

Specific details of publication plans are subject to Council approval at its meeting held prior to the 1959 business meeting."

February 24, 1960: Negotiations on the new journal were reviewed, including the development of a contract with the Rockefeller Institute Press. The subsidy involved made it clearly in our interest to take this offer. The membership expressed their appreciation of the work of the Publications Committee. The Council's selection and election of the Editor and Editorial Board were announced. They were Editor: Frank Brink; Editorial Board: (serving 1960-61) K. C. Cole, J. D. Hardy, J. C. Kendrew, J. L. Oncley, and C. A. Tobias; (serving 1960-62) M. Calvin, H. J. Curtis, E. Katchalski, M. F. Perutz, and D. A. Yphantis; (serving 1960-63) T. F. Anderson, H. Quastler, A. Rich, R. B. Roberts, and R. C. Williams. The Journal was now open for acceptance of

papers, and the first issue was scheduled to appear by September. All members of the Society were to be potential referees for papers submitted. These papers were not limited in size but could be anything from half a page to a considerable number. Review papers and invited papers could be accepted. An opportunity was scheduled for the members to express themselves on the publication of abstracts.

On the previous day, the 1959 Council had passed a motion by Brink "that the name of the journal shall be the *Biophysical Journal*".

BRONK AND THE ROCKEFELLER PRESS

Now let me completely change the scene by recalling selected events which had occurred along the East Coast-Philadelphia, Baltimore, Washington, New York City, but with a brief excursion to Ann Arbor (which I realize is not an East Coast city). There are two concise references for the material which I will quote: "A Biographical Memoir of Detlev Wulf Bronk" (2) and "A History of the Rockefeller Institute, 1901-1953" (3). In the first of these references, Frank Brink describes the life of D. W. Bronk from his birth in New York City, through his graduate school days at the University of Michigan (where he was granted the degree of Doctor of Philosophy in physics and physiology in 1926), and through his establishment of the Departments of Biophysics at the University of Pennsylvania in Philadelphia (also the Johnson Foundation for Medical Physics) in 1929, Johns Hopkins University in 1948, and Rockefeller University in 1953. Bronk's active laboratory work in biophysics ended when he became President of Johns Hopkins and later of the Rockefeller Institute, although he did continue in some research planning and had an office in the biophysics laboratories at both institutions. The last research paper bearing his name (coauthors P. Cranefield and F. Brink) appeared in 1957, about 34 years after his first paper.

Bronk had certainly known about the formation of a Biophysical Society since he was invited as guest of honor and scheduled to be the dinner speaker at the 1957 First National Biophysics Conference. His photograph was on page 1 of the printed Abstracts. He also was a Charter Member of the Society, and remained a member until his death in 1975.

On December 14, 1957 the first meeting of the Temporary Council took place in the Caspary Room at the Rockefeller Institute. The Secretary's letter to the Council stated that "Dr. Bronk has extended a most cordial welcome," and the minutes of that meeting close with the statement "Thanks were expressed for the excellent facilities of the Rockefeller Institute, and the lunch given

by Dr. Bronk." Brink, who was professor of Biophysics at Rockefeller Institute and Dean of Graduate School at that time (in 1974 he became Detlev W. Bronk Professor of Biophysics) certainly saw something of Bronk. But I should remind you that Bronk was incredibly busy at that period of his life, and the *Biophysical Journal* could not have been his most important concern.

The Rockefeller Institute for Medical Research was incorporated in 1901. It first worked through grants-in-aid to a few outstanding workers, and then developed a temporary laboratory at Lexington Avenue and 50th Street, New York City (1904) and its present laboratories and hospital on York Avenue (1907). Very early in its life, the Rockefeller Institute Board realized that it was important to have journals for the publication of the work that they were financing. Let me quote a few paragraphs from Corner (3):

"At the time there were only three American journals devoted to experimental research in the medical sciences, namely, the *Journal of Experimental Medicine*, founded in 1896 in Baltimore and edited by W. H. Welch, the *Journal of Medical Research*, begun in Boston under another name in 1896 and edited by Harold C. Ernst, and the *American Journal of Physiology*, started in 1898." Before these periodicals were available, American contributors to medical research had been obliged to publish their papers, often in condensed form and imperfectly illustrated, in journals devoted mainly to practical medicine, or else to send them to Europe. The American journals only partially met the need, however, and when papers began to come from the recipients of The Rockefeller Institute's grants-in-aid, there was again a shortage of space. Obviously the Institute needed a journal of its own.

"At the Board meeting of October 1902 somebody . . . suggested that the Institute might acquire the *Journal of Experimental Medicine*." . . . The Rockefeller Institute took over the journal . . . (and) the second half of the interrupted volume was completed at the Institute and published in February 1905. Since that time the Journal has appeared regularly and has continued to be one of the world's most respected medical research journals. . . . Although the *Journal of Experimental Medicine* was originally taken over as an outlet for Institute papers, it has always welcomed articles from outside and applied the same criteria for judging their acceptability as for those from inside the Institute. The proportion of outside contributions was for a long time more than half the total, and in recent years has risen to five sixths." (62-3, reference 3)

When The Rockefeller Institute took over the *Journal of Experimental Medicine* in 1905, Simon Flexner set up a Publication Department, and after about 1919 a Division of Publication, which soon took on other responsibili-

ties. "After Christian A. Herter's death in 1910, the *Journal of Biological Chemistry*, which he had founded in 1905, needed institutional sponsorship, and the Institute began in 1914 to publish it with D. D. VanSlyke as editor. By 1925 this journal was able to stand alone, and the Institute relinquished its responsibility. In 1918 Jacques Loeb and W. J. V. Osterhout (then at Harvard University) founded the *Journal of General Physiology*, which the Institute continues to publish. The Division of Publication nearly added another periodical, the *Journal of Clinical Investigation*, begun 1924 with an editorial board of eight, of whom six were or had been on the staff of the Hospital of The Rockefeller Institute. The Institute had been expecting to sponsor this journal and when the Society for Clinical Investigation took it up instead, the Institute provided a generous subsidy for several years." (515-6, reference 3)

Bronk became President of The Rockefeller Institute in September, 1953 with a program, developed by their Scientific Board of Directors, of which Bronk had been a member since 1946, to convert the institution to a graduate University of Science. This conversion was a long process, with the first step being the incorporation under the Board of Regents with the right to grant the advanced degrees of Doctor of Philosophy and Doctor of Medical Science in January, 1955. In September, 1955 ten graduate students began their studies as candidates for the Ph.D. But it was not until 1965 that the Institute became Rockefeller University. During this period, three journals were born. *The Journal of Cell Biology*, formerly *The Journal of Biophysical and Biochemical Cytology*, was founded in 1955, with Editor-in-Chief, Keith R. Porter and Executive Editor, Raymond B. Griffiths, and designed as the official journal of the American Society for Cell Biology; and *The Journal of Lipid Research*, founded in 1959 as the official journal of Lipid Research, Inc., a nonprofit organization for the promotion of basic research, with Editor-in-Chief, Edward H. Ahrens, Jr. and Executive Editor, E. Peter Woodford. Both Porter and Ahrens were scientific staff members of the Rockefeller Institute. It was in the next year that these two journals were joined by the *Biophysical Journal*.

THE BIOPHYSICAL SOCIETY

Now back to the Biophysical Society. R. C. Williams expressed his views on the publication problem in a letter to members of the Temporary Council dated September 22, 1958 and in his report to the Society read at the February 26, 1959 Annual Business Meeting. Williams thought that he had detected deep-seated differences of opinion among council members concerning the desirabil-

ity of having an official publication. He also stated that "It has become obvious . . . that the notion of publication is not independent of the selection of some kind of Editorial staff. Indeed, it would seem that contractual details with a publishing house should receive in advance the blessing of whoever is to act as the equivalent of Editor. Furthermore, if the Council approves a publishing plan and wants the support of the Society, it would be advantageous to be able to announce the name of the Editor-designate before the plan is put to the membership to vote. So we are somewhat on the horns of a dilemma. We cannot seriously hope to interest anyone in being Editor until we can give him reasonable assurance that there will be a journal (at least as far as the wishes of the Council are concerned), but also we cannot tie up our publication plans neatly until we have selected an Editor. The Executive Board has appreciated this problem, and has begun to make extremely informal feelers toward finding one or two persons who would be willing to serve in an editorial capacity. We have thought in terms of dividing the job, to make it less arduous, by having an Editorial Committee whose chairman would be Editor. Another member of the Committee would be Managing Editor, whose duties would be primarily to handle the business arrangements and the editorial traffic (route the manuscripts and handle correspondence with authors)."

Now we have a lot of facts, and it seems very likely to me that all of the facts quoted above must have been known to Rosenblith, Williams, and Pollard; and probably to the entire Temporary Executive Board. I only realized a few days ago the significance of the dates that the Rockefeller Press founded the *Journal of Lipid Research* and the *Journal of Cell Biology*. I could now understand the answer I got from Frank Brink at the Editors reunion at the 1990 Baltimore meeting of the Society. I asked Frank if he was the one who suggested the Rockefeller Press to Walt. The answer was to the effect that he did not—it was more that the Rockefeller Press had suggested him as Editor.

Given this situation, how would you have proceeded with the establishment of a journal for the new Biophysical Society? I believe the answer is just as Walt Rosenblith did. He was a major league manager, and after the 1959 meeting he soon found himself in the catbird seat. I hope that my notes will call attention of the Biophysical Society members to the debt they owe to Walt Rosenblith for his most important part in the establishment of our Journal.

THE BIOPHYSICAL JOURNAL

As to the event which we call the founding of the *Biophysical Journal*, I always thought of the October 17,

1959, eight hour Executive Board Meeting. But the February 23, 1960 date of Frank Brink's announcement to the 1960 Business Meeting of the Society is probably a better choice. That was only two days less than thirty years from the time of the meeting of the Editorial Board that Editor Thompson chose to invite the Past Editors to be guests of the *Biophysical Journal*.

I would like to take a few more paragraphs to discuss some of the most important actions that I took during my three years (1964–1966) as Editor. Many of our problems were similar to those of today: (1) broaden the scope of the *Biophysical Journal*. (2) Attract more Biophysical Society members to contribute to the *Biophysical Journal*. (3) Broaden the readership of the *Biophysical Journal*. But the problems we did solve were: (1) to reduce the unpublished backlog of accepted papers from about 27 to 13 which was solved by obtaining a special grant from the NIH to finance the publication of 14 manuscripts in Volume 5. (2) To reduce the deficit of the *Biophysical Journal* by the introduction and increase of page charges (first established at \$5 per page, and increasing to \$35 over a three or four year period). This also enabled the *Biophysical Journal*, originally published bimonthly, to become a monthly. (3) To increase the overseas subscriptions. The society obtained the membership list of the Science Council of Japan for circulation by the Rockefeller Press, and in 1966 I set up a display booth for the *Biophysical Journal* at the Vienna meeting of IUPAB.

A final problem that took some 15 years to solve was the inclusion of the Biophysical Society abstracts in the Journal. Rosenblith had suggested this possibility to the membership before the authorization of the publication of a journal—undoubtedly a carrot! But we found that it would require something over \$3,000 per year, and several weeks more delay in the printing. At every annual meeting the question would be raised again. I was Program Chairman for the 1961 meeting, and introduced the type of photo-offset printing of abstracts still used today. All prior abstracts had been typeset, introducing added cost, time delay, and errors. We also had firm instructions from the council that the program should be made pocket size, and we introduced the date, place, and headquarter hotel for the next meeting, and numbered the current meeting—in this case the 5th annual meeting. This made official the numbering of the meetings (Williams had earlier remarked that the 1957 meeting might well be called the first meeting of the Biophysical Society). That action made the statement in the announcement of the 30th meeting in San Francisco regarding a Thirtieth Anniversary Luncheon ambiguous. It would have been the 29th anniversary of the Columbus Meeting, probably in most people's minds. But it was the 30th anniversary of

an important but almost forgotten event at the Federation meeting in Atlantic City on April 16, 1956, when Sam Talbot chaired the meeting where the Committee of Four was selected and charged to hold the First National Biophysics Conference. Also, the 1959 meeting should be listed with the other meetings when listed in the directory. In 1962 at the 6th meeting we established the page size of the abstracts to be the same as the journal size. For the 9th meeting in 1965 we added the note "it is suggested that these abstracts be bound with volume V (1965) of the *Biophysical Journal*" on the cover, and this was repeated in 1966 and 1967. At the 13th and 14th meeting the cover note was omitted, but the masthead of the *Biophysical Journal* was used on the cover. This must have caused a dispute with Rockefeller Press, since abstracts for the 14th and 17th meetings no longer used the masthead, and contained the cover note "The Abstracts are not part of the *Biophysical Journal*, but for your convenience may be bound with Volume 11." Finally, I note that starting with the 18th meeting (1975, and Volume 15 when Fred Dodge was Editor) the abstracts have been a real part of the *Biophysical Journal*. Mission accomplished!

One final remark. I have been delighted with the effectiveness of all of the *Biophysical Journal* Editors. I note that four of them have also served as President of the Society, and am especially proud that one of them, Tom Thompson, is my scientific son. Keep up the good work.

APPENDIX I

Officers and council, 1956–1958

The society directories contain a most valuable list of most of the members of the society that have held office. Unfortunately, the Past Council Members classes of 1958 and 1959 are in error, and the name of O. H. Schmitt, who acted as the Society's only vice president is never mentioned. This Council and set of Officers also began their duties at the end of the 1957 meeting, so all were in office for two years; one year before the Society was formally voted to be formed, and seated until the 1959 meeting. There were three Council meetings in 1957, three again in 1958, and one in 1959. Executive Board meetings were held in 1957 (Sept.), 1958 (May), and 1959 (Jan.). There were also many meetings of the Council during 1957. Since the Society claims the 1957 meeting, there should also be lists of the Committee of Four, and of the program advisory committee, as well as the local organizing committee.

The early organization of the Biophysical Society can only be understood in terms of a set of 11 Resolutions, printed in the 1959 and 1960 membership lists of the Society. They were passed during the consideration of the Constitution and by-laws in the Cambridge Organizing Meeting, Feb. 5, 1958, and "were devised to allow the Society to proceed with the business of ratification, and to allow the affairs of the Society to proceed in an orderly fashion during the interim period between this meeting and such time as the provisions of the Constitution and By-laws can be fully and strictly adhered to." They provided for the Temporary Organization Officers and Council to serve until the end of the 1959 Annual Meeting, with mail elections held in November, 1958 as provided in the Constitution and By-laws. The Secretary elected in

1958 would serve an initial term of two years (rather than four), and the Treasurer a regular four year term. On the ballot for President, the candidate with the highest number of votes became the President, and the next highest candidate became President-elect. This resolution also made all temporary council and officers eligible for election in 1958. The Past Council Members listed in the Society history section of the directories as Classes of 1958 and 1959 should be combined and O. H. Schmitt (Vice-President) should be added to the list, with a footnote stating that the first regularly elected council took office at the 1959 meeting.

The first two classes of Editorial Board Members are also in error, and should be as shown in the notes of the Feb. 24, 1959 meeting quoted in main manuscript.

First National Conference on Biophysics

Committee of Four (April 18, 1956–March 6, 1957)

S. A. Talbot, Chairman; K. S. Cole, E. C. Pollard, and O. H. Schmitt.

Program Advisory Committee (May 26, 1956–March 6, 1957)

F. D. Carlson, D. B. Cowie, H. W. Curtis, A. P. Gagge, M. A. Lauffer, C. Levinthal, J. C. Lilly, N. R. Rashevsky, W. A. Rosenblith, H. P. Schwan, C. W. Sheppard, R. W. Stacy, and A. C. Young.

Invited but unable to attend: B. Chance, J. D. Hardy, H. K. Hartline, A. Rich, R. L. Sinsheimer, C. A. Tobias, and R. W. Gerard.

Program Committees: K. S. Cole, E. C. Pollard (Chairman), O. H. Schmitt, S. A. Talbot, M. F. Morales, H. J. Morowitz, H. P. Schwan, and R. W. Stacy.

Temporary organization of Biophysical Society (March 6, 1957–Feb 27, 1959)

Officers: *R. C. Williams, Chairman; *O. H. Schmitt, Vice Chairman; *S. A. Talbot, Secretary; *R. W. Stacy, Treasurer.

Board Members: F. D. Carlson, K. S. Cole, H. K. Hartline, †M. A. Lauffer, C. Levinthal, *E. C. Pollard, E. Rabinowitch, N. R. Rashevsky, A. Rich, R. B. Roberts, *W. A. Rosenblith, F. O. Schmitt, A. K. Solomon, H. B. Steinbach, C. A. Tobias, and R. E. Zirkle. (Exec. Comm. noted * for 1957, † for 1958).

APPENDIX II

Composition of Publication Committees, 1957–1960

Walter A. Rosenblith was the Chairman of the Publications Committee for all the years during the formation of the *Biophysical Journal*. The other members of the Publications Committee are given below. Dates given are from the time of the Annual Meeting at which the committee became effective (one year appointments).

1957 E. C. Pollard, A. C. Burton was also asked to serve, but he could not undertake to travel to meetings at that time. (He was President of the American Physiological Society in 1956).

1958 T. E. Anderson, E. C. Pollard, N. R. Rashevsky, C. A. Tobias, and R. C. Williams.

1959 I. Gray, E. C. Pollard, M. A. Lauffer, R. C. Williams, plus the Editor (when appointed) and a lawyer when any signing takes place (later designated as the legal advisor to the MIT Press). This committee was authorized to conclude negotiations with the publishers.

1960 S. A. Talbot, F. Brink (Editor), I. Gray, E. F. MacNichol, and R. B. Setlow. This committee was named after the 1960 Council's suggestion that members should not be drawn from the Editorial Board.

A. Rich became the chairman of a new Publication Committee in 1961.

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