

2. As I understand the phenomenon, it is near the tip, B' , that the surface tensions acting with a component inward are first balanced by the electric pressure $2\pi\sigma^2$ outward. The application of the latter is strictly on the outer surface. Hence the surface layer of molecules is successively slid toward the point and then stripped off, until after ten or more repetitions, the remaining tissue is so thin that it breaks. This ionized molecular exfoliation, which takes place entirely without light effects even in the dark, may be referred to as in the caption.

In the beginning, when the bubble is thick at the bottom, holding a drop, etc., the first faint sparks imply an internal pressure reduction of less than 25 dynes/cm². At the end, when the bubble is possibly thinnest at the bottom, the pressure reduction is usually about 55 dynes/cm², and it is here that the surface tension proper competes with the electric pressure. If the pressure to produce a spark be estimated at 68 dynes per cm², the lines would seem to break off, to this extent, more easily from a liquid than from a solid surface; but in view of the varied curvature of the bubble, it is difficult to ascertain the distribution of the contending forces. The difference of capillary and electrical pressure only must be constant and it is rather remarkable that the two data given are so near together.

CARL BARUS

BROWN UNIVERSITY,
PROVIDENCE, R. I.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

REPORT OF THE TREASURER FOR 1922

Accepted by the Council, A. A. A. S., at Cambridge, Massachusetts, December 26, 1922

TO THE COUNCIL OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE:

Gentlemen:

IN conformity with article 15 of the constitution and by direction of the council, the treasurer has the honor to submit the following report for the period December 20, 1921, to September 30, 1922. This period covers the time necessary to comply with the new arrangement for the fiscal year of the association. Henceforth the fiscal year of the treasurer will begin on October 1 and end on September 30.

The total of cash receipts during the period is \$4,803.14. Disbursements made in accordance

with directions of the council amounted to \$4,720.10.

The total amount of funds of the association, consisting of cash, cost value of securities purchased, and appraised value of securities received from the Colburn estate is \$121,414.77.

A detailed statement is appended.

(Signed) ROBERT S. WOODWARD,
Treasurer

Washington, D. C.

September 30, 1922.

TREASURER'S CASH STATEMENT

December 20, 1921 to September 30, 1922

| <i>Receipts</i> | |
|--------------------------------|-------------|
| December 20, 1921, balance | |
| from last report..... | \$ 5,585.90 |
| Interest from securities..... | \$ 4,772.13 |
| Interest from bank balance.... | 31.01 |
| | <hr/> |
| | 4,803.14 |
| | <hr/> |
| | \$10,389.04 |

Disbursements

| | |
|--|-------------|
| <i>Grants:</i> | |
| B. E. Livingston, permanent secretary (for Dr. Greenman) | \$ 500.00 |
| A. W. Smith..... | 150.00 |
| L. R. Ingersoll..... | 150.00 |
| F. C. Blake..... | 150.00 |
| A. W. Rowe..... | 250.00 |
| Harold Hibbert..... | 200.00 |
| William C. Rose..... | 100.00 |
| W. Tyler Olcott, Secretary | 200.00 |
| Caroline E. Furness..... | 100.00 |
| Herman J. Muller..... | 250.00 |
| S. O. Mast..... | 200.00 |
| Ralph E. Benedict..... | 125.00 |
| Fred T. Rogers..... | 200.00 |
| Frank P. Knowlton..... | 200.00 |
| Frank H. Hartman..... | 150.00 |
| Sebastian Albrecht..... | 100.00 |
| Otis F. Curtis, Treasurer.... | 250.00 |
| John T. Buchholz..... | 125.00 |
| August F. Foerste..... | 150.00 |
| F. Canu..... | 250.00 |
| Raymond Dodge..... | 400.00 |
| Franklin O. Smith..... | 300.00 |
| | <hr/> |
| | \$ 4,500.00 |

| | |
|--------------------------------|-------------|
| Two life memberships from | |
| Jane M. Smith Fund..... | 200.00 |
| Rental of safe deposit box.... | 20.00 |
| Foreign exchange..... | .10 |
| | <hr/> |
| | \$ 4,720.10 |

| | |
|--------------------------|-------------|
| <i>Cash in banks:</i> | |
| Fifth Avenue Bank..... | \$ 4,397.60 |
| U. S. Trust Company..... | 1,271.34 |
| | <hr/> |
| | 5,668.94 |
| | <hr/> |
| | \$10,389.04 |

TREASURER'S BALANCE SHEET

September 30, 1922

Assets

| | |
|----------------------------|--------------|
| <i>Investments:</i> | |
| Securities (Exhibit A).... | \$121,414.77 |
| <i>Current Assets:</i> | |
| Cash in bank..... | 5,668.94 |
| | <hr/> |
| | \$127,083.71 |

| <i>Liabilities</i> | |
|--|--------------------|
| Funds and Accumulations: | |
| Life, sustaining members and patrons*..... | \$ 29,500.00 |
| Jane M. Smith..... | 5,000.00 |
| W. Hudson Stephens..... | 4,381.21 |
| Richard T. Colburn..... | 77,755.74 |
| Accumulated income invested in securities..... | 4,777.82 |
| | <hr/> \$121,414.77 |
| Unappropriated interest.. | 5,668.94 |
| | <hr/> \$127,083.71 |

SCHEDULE OF SECURITIES
(Exhibit A)

| <i>Par Value</i> | | <i>Purchase Value</i> |
|------------------|--|-----------------------|
| \$ 10,000 | Chicago and Northwestern Railway Co. General Mortgage 4 per cent. bonds, due 1987..... | \$ 9,425.00 |
| \$ 10,000 | Atchison, Topeka and Santa Fe Railway Co. General Mortgage 4 per cent. bonds, due 1995..... | 9,287.50 |
| \$ 10,000 | Great Northern Railway Co. First and refunding mortgage 4.25 per cent. bonds, due 1961..... | 10,050.00 |
| \$ 10,000 | Pennsylvania Railroad Co. Consolidated mortgage 4.5 per cent. bonds, due 1960 | 10,487.50 |
| \$ 10,000 | Chicago, Burlington and Quincy Railroad Co. General mortgages 4 per cent. bonds, due 1958..... | 9,350.00 |
| \$ 10,000 | Union Pacific Railroad Co. first lien and refunding mortgage 4 per cent. bonds, due 2008..... | 9,012.50 |
| \$ 10,000 | Northern Pacific Railway Co. prior lien railway and land grant 4 per cent. bonds, due 1997..... | 9,187.50 |
| \$ 10,000 | New York Central and Hudson River Railroad Co. 3.5 per cent. bonds, due 1997..... | 8,237.50 |
| 100 | U. S. First Liberty Loan Bonds | 91.25 |
| 10,500 | U. S. Second Liberty Loan Bonds | 10,172.36 |
| 2,000 | U. S. Third Liberty Loan Bonds | 2,000.00 |
| 2,000 | U. S. Fourth Liberty Loan Bonds..... | 2,000.00 |
| 6,500 | U. S. Victory Liberty Loan Bonds..... | 6,373.66 |
| | <hr/> \$ 95,674.77 | |
| 20,000 | <i>Bonds from Colburn Estate</i> Acker, Merrill and Condit Co. debenture 6 per cent. bonds..... | 13,600.00 |
| 7,000 | Buffalo City Gas Co. first mortgage 5 per cent. bonds | 1,540.00 |
| 8,000 | Park and Tilford Co. sinking fund debenture 6 per cent. bonds..... | 6,400.00 |

*The records show this item of \$29,500 as made up of 438 life memberships of \$50 each, 16 life memberships of \$100 each, and 6 sustaining memberships of \$1,000 each.—B. E. L.

| | | |
|-----------|--|--------------------|
| 42,000 | Pittsburgh, Shawmut and Northern Railroad first mortgage 4 per cent. bonds, due February 1, 1952 | 4,200.00 |
| | | <hr/> \$ 25,740.00 |
| \$173,500 | | <hr/> \$121,414.77 |

All of the above named securities, except those from the Colburn estate, are registered in the name of the association.

AUDITOR'S REPORT

I certify that I have audited the accounts of the treasurer of the American Association for the Advancement of Science for the period December 20, 1921 to September 30, 1922; that the securities representing the investments of the association have been exhibited and verified; with the exception of the P. S. and N. R. R. bonds which were represented by a receipt from the Columbia Trust Company of New York, and a \$100 United States bond represented by a receipt from the United States Treasury Department, for title transfer, and that the income therefrom has been duly accounted for.

The financial statements accompanying the treasurer's report are in accord with the books of the association and correctly summarize the accounts thereof.

(Signed) ROBERT B. SOSMAN,
Auditor

Washington, D. C.
December 12, 1922.

TREASURER'S REPORT ON AGGREGATE
RECEIPTS AND DISBURSEMENTS
SINCE AUGUST, 1894

TO THE COUNCIL OF THE
AMERICAN ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE.

Gentlemen:

Supplementing my report of September 30, 1922, I beg to state that interest collections since September 30, 1922 (date of report), amount to \$1,009.38. This amount added to collections reported in statement of September 30 gives a total collection of \$5,812.52 during the year.

An aggregate statement of receipts and disbursements from August 21, 1894 to September 30, 1922 is appended. This statement shows collections from all sources amounting to \$161,940.76 and disbursements amounting to \$162,123.61, of which \$121,414.77 represents cost of invested funds.

Respectfully submitted,
(Signed) ROBERT S. WOODWARD,
Treasurer

Washington, D. C.
December 20, 1922

Receipts

| | |
|--|--------------------|
| August 21, 1894 to September 30, 1922 | |
| August 21, 1894, cash on deposit, State Bank Safe Deposit Co., Boston.....\$ | 5,564.48 |
| Cambridge Savings Bank | 287.31 |
| | <hr/> \$ 5,851.79 |
| Collections: | |
| Interest on securities..... | 33,901.10 |
| Interest on bank deposit.. | 11,838.71 |
| Life memberships..... | 19,180.00 |
| Subscriptions, gifts and patrons | 4,467.00 |
| Pasteur fund..... | 100.00 |
| Transferred from funds | |
| Permanent Secretary by order of council..... | 5,000.00 |
| Research funds..... | 87,178.95 |
| Revertments | 275.00 |
| | <hr/> \$161,940.76 |
| | <hr/> \$167,792.55 |

Disbursements

| | |
|---------------------------------------|--------------------|
| August 21, 1894 to September 30, 1922 | |
| Grants | \$ 29,741.45 |
| Life memberships..... | 8,300.21 |
| Jane M. Smith fund..... | 1,450.00 |
| Securities | 121,414.77 |
| Purchased interest..... | 826.58 |
| Rental safe deposit box..... | 90.60 |
| Pasteur and other funds.... | 300.00 |
| | <hr/> \$162,123.61 |
| Cash in Banks: | |
| Fifth Avenue Bank of New York.....\$ | 4,397.60 |
| U. S. Trust Company of New York..... | 1,271.34 |
| | <hr/> \$ 5,668.94 |
| | <hr/> \$167,792.55 |

FINANCIAL REPORT OF THE PERMANENT
SECRETARY FOR THE FISCAL YEAR, 1922
October 1, 1921 to September 30, 1922

Receipts

| | |
|--|-------------------|
| To balance from last account: | |
| Checking account.....\$ | 5,840.11 |
| Savings account..... | 4,355.09 |
| Petty cash..... | 7.81 |
| | <hr/> \$10,203.01 |
| To receipts from members: | |
| Annual dues, previous to 1921 | \$ 168.93 |
| Annual dues, 1921..... | 887.50 |
| Annual dues, 1922..... | 50,764.69 |
| Annual dues, 1923 (paid in advance) | 363.00 |
| Entrance fees..... | 1,204.87 |
| Life membership fees..... | 1,500.00 |
| Associate fees..... | 1,150.39 |
| | <hr/> \$56,039.38 |
| To other receipts: | |
| From treasurer's office: | |
| For life members' journal subscriptions.....\$ | 1,029.00 |
| Special grant appropriation | 500.00 |
| Sale of publications | 770.00 |
| Postage, exchange, overpayments, etc..... | 706.23 |

| | |
|----------------------------|-------------------|
| Interest on bank account.. | 142.59 |
| | <hr/> \$ 3,147.82 |
| Total | <hr/> \$69,390.21 |

Disbursements

| | |
|--|-------------------|
| By publications: | |
| Science Press..... | \$32,161.46 |
| By divisions, local branch and academy expenses: | |
| Divisions | \$ 1,275.00 |
| State College (Pa.) local branch | 52.00 |
| Remitted to affiliated academies on account of affiliation arrangements..... | 1,328.00 |
| | <hr/> \$ 2,655.00 |
| By expenses, general secretary's office..... | |
| | 160.95 |
| By expenses, permanent secretary's Washington office: | |
| Salary, permanent secretary | \$ 2,500.00 |
| Salary, assistant secretary.. | 1,000.00 |
| Salary, executive assistant.. | 2,610.00 |
| Usual clerical help..... | 2,230.00 |
| Office and addressograph supplies | 222.47 |
| Printing and stationery..... | 1,791.68 |
| Telephone and telegraph.... | 256.28 |
| Travel expenses..... | 1,919.07 |
| Postage (billing and correspondence) | 769.23 |
| Express | 52.35 |
| Miscellaneous | 326.40 |
| | <hr/> \$13,677.48 |
| By expenses, circularization: | |
| Affiliated societies and <i>American Men of Science</i>\$ | 2,124.04 |
| Medical men (New England) | 682.82 |
| Local committee, Toronto meeting | 188.78 |
| | <hr/> \$ 2,995.64 |
| By expenses, Toronto meeting: | |
| Travel expenses, W. Bateson | \$ 300.00 |
| Preliminary announcement.. | 1,124.11 |
| Messenger service (biologists) | 16.50 |
| Refund for expenses incurred by section secretaries | 134.29 |
| Miscellaneous | 21.50 |
| | <hr/> \$ 1,596.40 |
| By miscellaneous expenses: | |
| Refunds on account of overpayments | \$ 427.73 |
| Bad checks..... | 10.25 |
| Summarized proceedings and membership list (vol. 67-73), 1921..... | 5,430.43 |
| Life membership fees..... | 2,600.00 |
| Salt Lake City meeting..... | 450.32 |
| Committee on grants for research | 48.47 |
| Conference on Federation of Biological Societies, at Woods Hole, Massachusetts | 100.00 |
| | <hr/> \$ 9,067.20 |
| Total disbursements..... | <hr/> \$62,314.13 |