

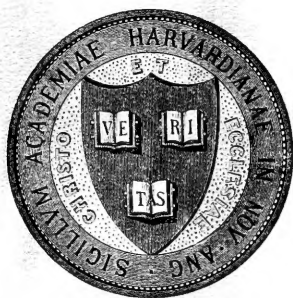
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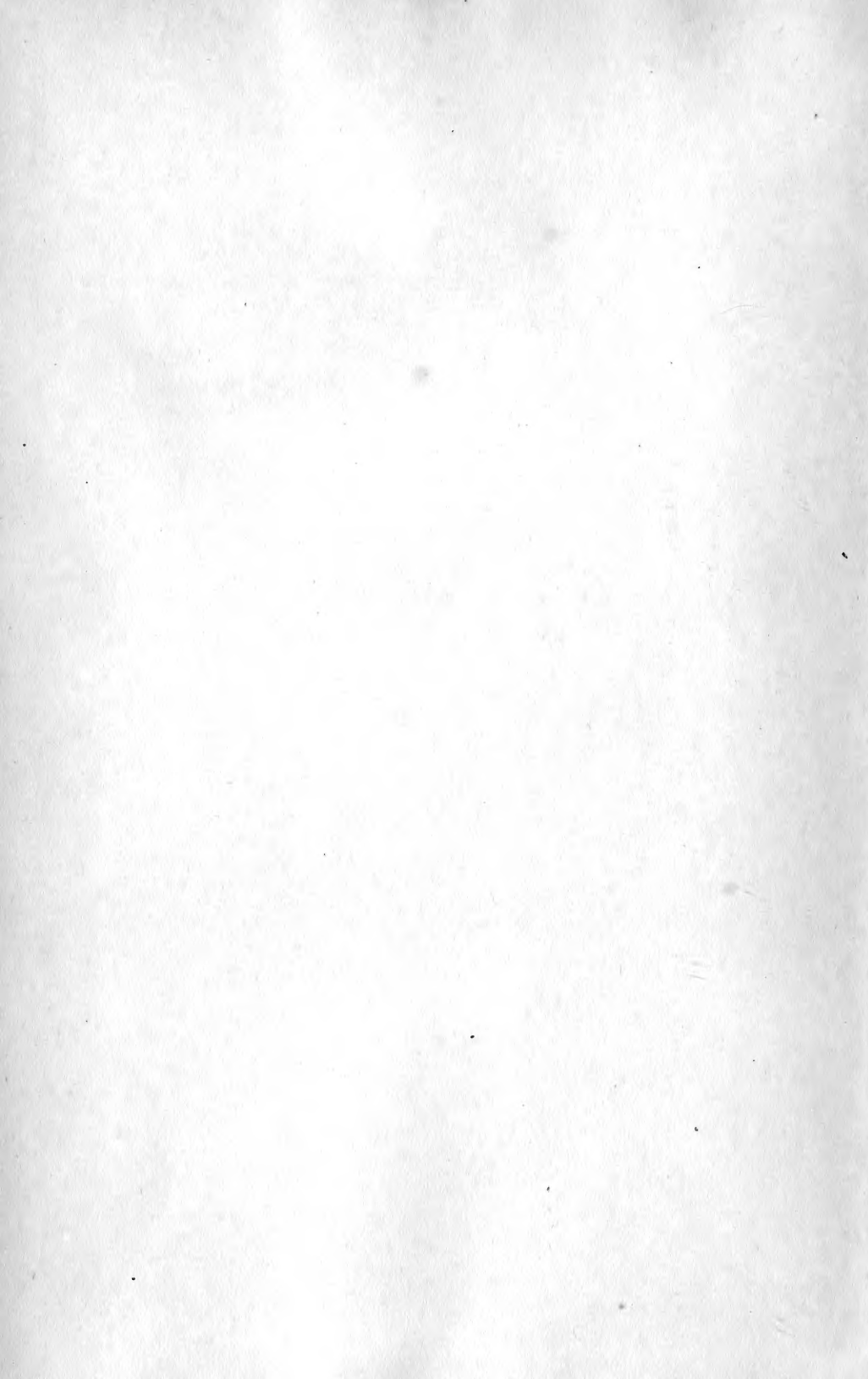
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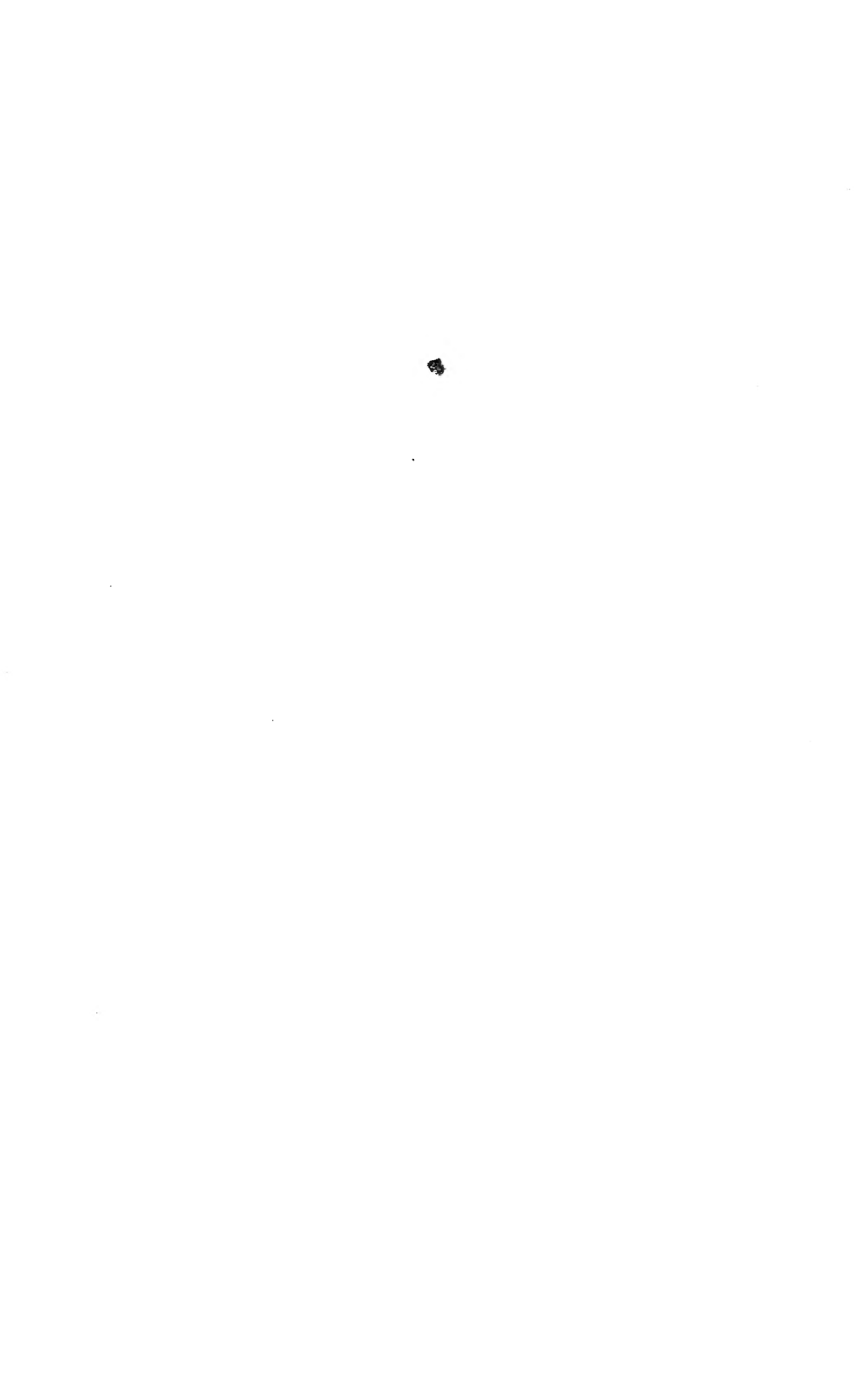
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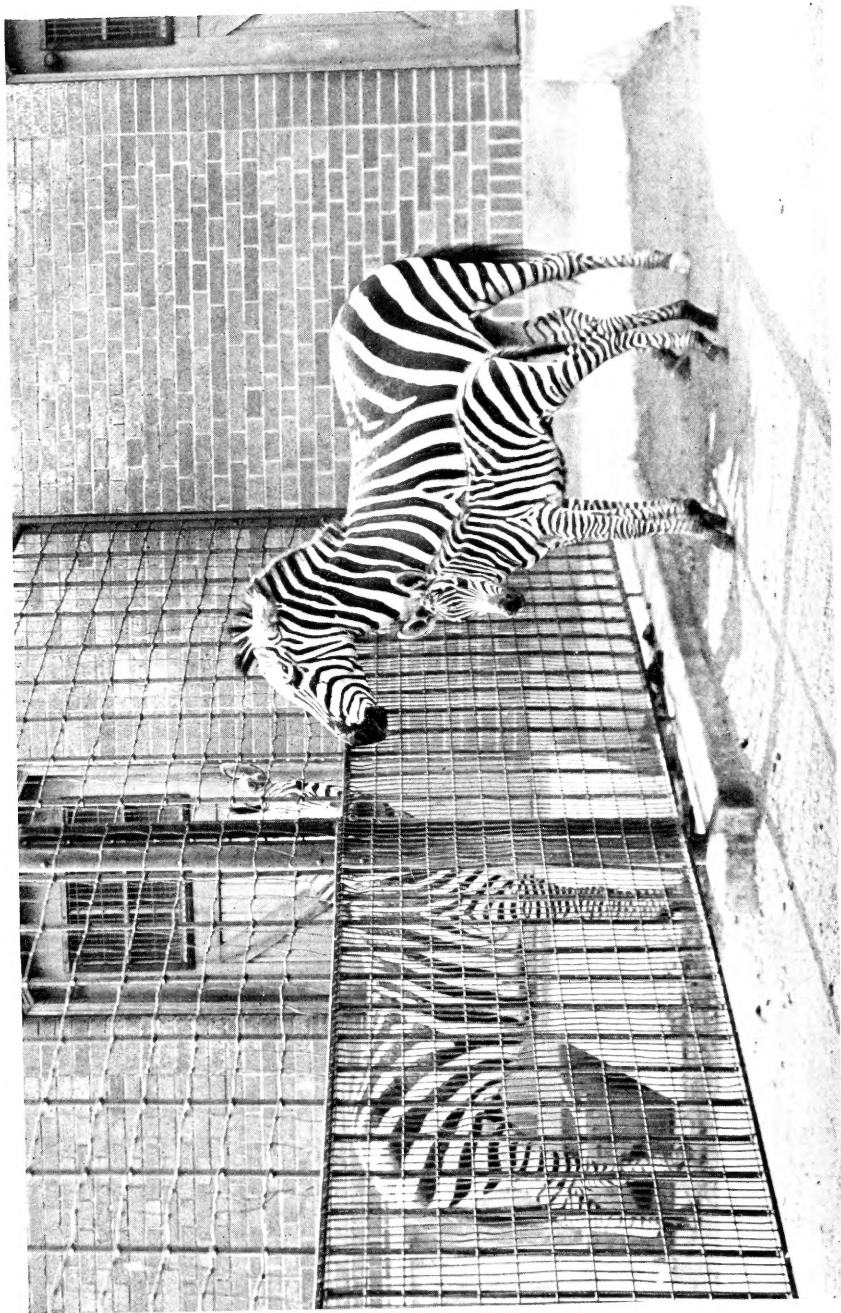
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GRANT ZEBRA AND YOUNG

One of the offspring of this female was presented to the Antwerp Zoological Garden.
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TWENTY-FOURTH ANNUAL REPORT
OF THE
NEW YORK
ZOOLOGICAL SOCIETY

CHARTERED IN 1895

OBJECTS OF THE SOCIETY
A PUBLIC ZOOLOGICAL PARK
THE PRESERVATION OF OUR NATIVE ANIMALS
THE PROMOTION OF ZOOLOGY

1919



NEW YORK
OFFICE OF THE SOCIETY, 111 BROADWAY
JANUARY, 1920

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 FABBRI, ALESSANDRO,
 FABBRI, ERNESTO G.,
 FABBRI, MRS. ERNESTO G.,
 FABER, EBERHARD,
 FAHNESTOCK, DR. ERNEST,
 FAHNESTOCK, MRS. ERNEST,
 FAHNESTOCK, WILLIAM,
 FAIRCHILD, BENJAMIN L.,
 FAIRCHILD, MRS. C. S.,
 FAIRCHILD, SAMUEL W.,
 FALLS, MRS. DEWITT CLINTON,
 FARLEY, MRS. GUSTAVUS, JR.,
 FARLEY, COLVIN,
 FARNAM, WM. W.,
 FARNHAM, PAULDING,
 FARQUHAR, PERCIVAL,
 FARR, MRS. A. M.,
 *FARRELL, JAMES C.,
 FARRELLY, T. CHARLES,
 FAX, FRANCIS B.,
 FECHTIG, DR. ST. GEORGE,
 FELDMAN, A. A.,

*DECEASED

- FERGUSON, MISS ELIZABETH D.,
 FERGUSON, WILLIAM C.,
 FEUSS, CAPT. ANDREW W.,
 FEUSTMAN, LEON P.,
 FIELD, MRS. AUGUSTUS B.,
 *FIELD, MRS. WILLIAM H.,
 FINCH, EDWARD B.,
 FINCKE, MRS. REGINALD,
 FISCHER, WILLIAM,
 FISCHER, WILLIAM H.,
 FISH, MRS. HAMILTON,
 FISHER, PROF. IRVING,
 FISHER, L. G.,
 FLAGLER, HARRY HARKNESS,
 FLANNERY, MRS. JOSEPH A.,
 FLEISCHMANN, UDO M.,
 FLEITMANN, FREDERICK T.,
 FLEMING, HENRY S.,
 FLEMING, MATTHEW C.,
 FLOYD-JONES, EDWARD H.,
 FOHR, FRANZ,
 FOOT, SANDFORD DWIGHT,
 FORAN, GEORGE J.,
 FORD, MISS LESTA,
 FORDYCE, JOHN A.,
 FOSTER, EDWARD W.,
 FOSTER, GIRAUD,
 FOSTER, MACOMB G.,
 FOSTER, SCOTT,
 FOWLER, MRS. ANDERSON,
 FOWLER, CHARLES, JR.,
 FOX, MISS ALICE BLEECHER,
 FOX, HUGH F.,
 FRANK, LOUIS,
 FRANKO, NAHAN,
 FRASER, ALEX. J.,
 FRASER, ALEX. V.,
 FRASER, MRS. GEORGE C.,
 FRASER, MISS J. K.,
 FREEMAN, MISS GERTRUDE A.,
 FRENCH, DANIEL C.,
 FRENCH, MRS. JOHN,
 FRIES, DR. HAROLD H.,
 FRISSELL, A. S.,
 FROST, AARON V.,
 FROTHINGHAM, JOHN W.,
 FULD, FELIX,
 FULLER, CHARLES D.,
 FULLER, MRS. EUGENE,
 FUNKE, EDMUND A.,
 GALLARD, MRS. WM. O.,
 GALLARD, NASHANAEL K.,
 GALLATIN, ALBERT,
 GALLATIN, MRS. ALBERT,
 GALLATIN, GOELET,
 GALLATIN, MRS. GOELET,
 GALLAWAY, MERRILL W.,
 GALLOWHUR, W. G.,
 GANSS, HERMAN O.,
 GARDINER, CHARLES B.,
 GARRETT, MISS LAURA B.,
 GARRETT, JOHN W.,
 GARRISON, MRS. J. H.,
 GARRETTSON, MISS HELEN JAY,
 *GAUTIER, DUDLEY G.,
 GAYLEY, MRS. GARDINER,
 GEDDES, DONALD G.,
 GARRARD, MISS MARGARET H.,
 GELSHENEN, WM. H.,
 GEORGE, G. K.,
 GERRISH, JOHN BROWN,
 GERRY, PETER G.,
 GERRY, ROBERT L.,
 GERSTENDORFER, ALBERT,
 *GETTY, HENRY N.,
 GIBB, MRS. H. E.,
 GILBERT, CLINTON,
 GILDERSLEEVE, HON. H. A.,
 GILLESPIE, ROBERT McM.,
 GILLIES, EDWIN J.,
 GILSEY, HENRY,
 GLAZIER, HENRY S.,
 GLYN, W. E.,
 GOADBY, W. H.,
 GODDARD, MRS. FREDERIC N.,
 GODFREY, MRS. E. D.,
 GODLEY, GEORGE McM.,
 GOELL, JACOB,
 GOLDMANN, JULIUS,
 GOLDMANN, NATHAN,
 GOLDWATER, HENRY,
 GOOD, REV. ROBERT,
 GOODHUE, CHARLES E.,
 GOODWIN, GEORGE B.,
 GOODWIN, MRS. J. J.,
 GOODWIN, JAMES L.,
 GOODWIN, GRENVILLE,
 GOODWIN, H. SAGE,
 GOODWIN, JOHN B. L.,
 GOODWIN, WALTER L.,
 GOODWIN, WALTER L., JR.,
 GORDON, MISS CLARA J.,
 GOTTHELF, CHARLES,
 GOTTHELF, HERMAN,
 GOTTHOLD, ARTHUR F.,
 GOTTHOLD, FREDERIC,
 GOULD, CHARLES A.,
 GOULD, CHARLES W.,
 GOULD, EDWIN,
 GOULD, MRS. EDWIN,
 GRAF, WILLIAM,
 GRAMAM, MRS. GEORGE S.,
 GRANT, LAWRENCE,
 GRANT, MRS. DE FOREST,
 GRAVES, GEORGE COE,
 GRAVES, HENRY, JR.,

*DECEASED

GRAVES, J. P.,
 GRAY, HENRY G.,
 GRAY, MRS. H. WINTHROP,
 GREENE, G. S., JR.,
 GREENOUGH, JOHN,
 GREENOUGH, MRS. JOHN,
 GREENWOOD, JOSEPH R.,
 GREER, CHARLES,
 GREER, MRS. LOUIS MORRIS,
 GRIEB, WILLIAM G.,
 GRIFFITH, MISS MARGARETTE E.,
 GRIFFITH, MISS SUSAN D.,
 GRIGG, HARRY K.,
 GRINNELL, E. MORGAN,
 GRISCOM, CLEMENT A., JR.,
 GRISWOLD, MRS. F. GRAY,
 GRISWOLD, W. E. S.,
 *GROSS, FRANK,
 GROSS, JAMES S.,
 GRUNDNER, M.,
 GRUNER, WM. C.,
 GUGGENHEIM, HARRY F.,
 GUGGENHEIM, SIMON,
 GUGGENHEIMER, MRS. ELIZA,
 GUNZBURG, A. M.,
 *GUITERAS, DR. RAMON,
 *GURNEE WALTERS,
 HAAS, GEORGE C.,
 HAFFEN, JOHN M.,
 HAFFEN, MISS WILHELMINA,
 HAGE, JOHN D.,
 HAIGHT, CHARLES S.,
 HAINES, CHARLES D.,
 HALKETT, MRS. SARAH STOKES,
 HALL, A. C.,
 HALL, FRANK L.,
 HALL, WM. W.,
 HALLOCK, CHARLES P.,
 HALLS, WILLIAM, JR.,
 HALSEY, CHARLES W.,
 HALSEY, HERBERT DRAKE,
 HAMANN, WILLIAM A.,
 HAMBLETON, T. EDWARD,
 HAMERSLEY, LOUIS GORDON,
 HAMILTON, MISS ELIZABETH S.,
 HAMILTON, MRS. WILLIAM PIERSON,
 HAMMOND, MRS. JOHN HENRY,
 HAMMOND, OGDEN H.,
 HAMMOND, WILLIAM F.,
 HANCE, JOHN A.,
 HARDIN, WM. B.,
 HARMON, MRS. CLIFFORD,
 HARRIMAN, MRS. HERBERT M.,
 HARRIMAN, W. A.,
 HARRISON, MRS. W. HENRY,
 HARRIS, CHARLES C.,
 HART, HAROLD G.,
 HARTSHORNE, J. M.,

HARTWELL, DR. JOHN A.,
 HASSLACHER, JACOB,
 HASTINGS, MRS. THOMAS,
 HATHAWAY, CHARLES,
 HAVEMEYER, HENRY,
 HAVEMEYER, J. C.,
 HAVEN, GEORGE G.,
 HAVEN, J. WOODWARD,
 HAVENS, ALBERT G.,
 HAWK, MRS. WILLIAM SAMUEL,
 HAWKES, MISS EVA,
 HAYNES, WILLIAM DEFORREST,
 HAZEN, GEORGE H.,
 HECHT, RUDOLF,
 HECKER, DR. ANTON J.,
 HECK, GEORGE C.,
 HECKSCHER, MRS. AUGUST,
 HEDGES, JOB E.,
 HEIDE, HENRY, JR.,
 HEIMAN, E.,
 HEINTZ, JOHN C.,
 HEMMING, H. G.,
 HENCKEN, HANCKE,
 HENDERSON, JOHN B.,
 HENDERSON, NORMAN,
 HENRY, FRANCIS A.,
 HENNING, EMIL F.,
 HEPBURN, MRS. A. BARTON,
 HERMANN, BERNARD F.,
 *HERMANN, MRS. FERDINAND,
 HERNSTADT, W. L.,
 HERRICK, HAROLD,
 HERRMAN, MRS. HENRY S.,
 HERSH, ROYAL V.,
 HERTER, MRS. ALBERT,
 HERZOG, PAUL, M.,
 HEWITT, MISS SARAH C.,
 HEWITT, HERBERT H.,
 HEWITT, PETER COOPER,
 *HEXAMER, A. P.,
 HEYDT, CHAS. E.,
 HICKS, E. PIERPONT,
 HICKS, JOHN M. W.,
 HIGGINS, RICHARD H.,
 HIGGINSON, MRS. J. J.,
 HILL, E. B.,
 HILL, ROBERT C.,
 HINCKLEY, MRS. SAMUEL NEILSON,
 HIRD, SAMUEL,
 HIRSCH, CHARLES S.,
 HIRSCHLAND, FRANZ H.,
 HOCHSCHILD, BERTHOLD,
 HODGES, HARRISON B.,
 HOE, MRS. ROBERT,
 HOFFMAN, CHARLES FREDERICK,
 HOFFMAN, MISS M. U.,
 HOFFMAN, MRS. WILLIAM M. V.,
 HOGG, JAMES A.,

*DECEASED

- HOLBROOK, MRS. EDWARD,
 HOLLISTER, GEORGE C.,
 HOLTER, MRS. E. O.,
 HOMES, HENRY F.,
 HOOLEY, EDWIN S.,
 HOOKER, DR. RANSOM S.,
 *HOPKINS, RUSSELL,
 HOPKINS, A. A.,
 HOPPIN, MISS FRANCES,
 HOPPIN, HAMILTON L.,
 HOPPIN, WILLIAM W., JR.,
 HORNADAY, MRS. J. C.,
 HORR, L. WILLIAM,
 *HORSMAN, EDWARD, J., JR.
 HOSKIER, H. C.,
 HOUSMAN, CLARENCE J.,
 HOWELL, T. A.,
 HOWLAND, MRS. HENRY E.,
 HOYT, ALFRED O.,
 HOYT, COLGATE,
 HOYT, EDWIN,
 HOYT MRS. HENRY R.,
 HOYT, MRS. JESSE,
 HOYT, JOHN S.,
 HOYT, MISS VIRGINIA SCOTT,
 HOYT, WALTER S.,
 HUBBARD, WALTER C.,
 HUFF, E. S.,
 HULSE, RICHARD J. E.,
 HUNGERFORD, RICHARD S.,
 HUNN, ARTHUR B.,
 HUNTINGTON, MRS. ROBERT P.,
 HUNTINGTON, FORD,
 HUNTMAN, REV. GERARD H.,
 HUFFEL, J. CHRISTIAN G.
 HUSTED, MISS M. KATHARINE,
 HUSTED, SEYMOUR L., JR.,
 HUTCHINS, AUGUSTUS SCHELL,
 HUTCHINS, HARLEY D.,
 HUTCHINSON, CARY T.,
 HUYLER, C. D.,
 HUYLER, F. D.,
 HYDE, AUGUSTUS L.,
 HYDE, B. T. BABBITT,
 HYDE, DR. FREDERICK E.,
 HYDE, MRS. WILLIAM H.,
 HYDE, W. TRUSLOW,
 *HYDE, MRS. E. FRANCIS,
 IBBEKEN, ANTHONY G.,
 *INCHES, GEORGE B.,
 INGERSOLL, ROBERT H.,
 INNIS, WILLIAM R.,
 INSLEE, EDWIN W.,
 IRONS, HENRY C.,
 ISELIN, C. OLIVER,
 ISELIN, MISS GEORGINE,
 ISELIN, JOHN H.,
 ISELIN, MISS LOUISE M.,
 ISELIN, WILLIAM E.,
 ISELIN, MRS. WILLIAM E.,
 ISELIN, WILLIAM O'DONNELL,
 ISHAM, CHARLES B.,
 ISHAM, WILLIAM B.,
 ISRAEL, LEON,
 *JACKSON, DR. GEORGE THOMAS,
 *JACKSON, R. C.,
 JACKSON, R. HALSEY,
 *JACKSON, SAMUEL MACAULEY,
 JACOB, LAWRENCE,
 *JACOBI, DR. A.,
 JACOBS, SAMUEL K.,
 JACOBUS, JOHN S.,
 JACQUELIN, HERBERT T. B.,
 JAFFRAY, ROBERT,
 JAMES, MRS. ARTHUR CURTISS,
 JAMES, HENRY, JR.,
 JAMES, DR. ROBERT C.,
 JAMES, MRS. WORTHAM,
 JAMES, MRS. WALTER B.,
 JENKINS, MRS. GRACE HARTLEY,
 JENKINS, A. W.,
 JENKINS, MRS. HELEN H.,
 JENKINS, J. D.,
 JENKINS, WILLIAM B.,
 JENKS, ROBERT I.,
 JENNINGS, FREDERICK B.,
 JENNINGS, SIDNEY J.,
 JENNINGS, WALTER,
 JESUP, MRS. JAMES R.,
 JESUP, RICHARD M.,
 JOHN, ROBERT,
 JOHNSON, F. COIT,
 JOHNSON, GUY B.,
 JOHNSON, GILBERT H.,
 JOHNSON, THOS. W.,
 JOHNSTON, J. HERBERT,
 JOHNSTON, WILLIAM J.,
 JONES, MRS. A. MASON,
 JONES, MRS. CADWALADER,
 JONES, CHARLES H.,
 JONES, H. BOLTON,
 JONES, LEWIS Q.,
 KAHN, FELIX E.,
 KAHN, LOUIS,
 KAHN, DR. ROBERT J.,
 KAHN, WALTER N.,
 KANE, MRS. ARTHUR S.,
 KANE, MRS. DELANCEY,
 KARCHER, FRANK J.,
 KARELSEN, EPH A.,
 KAST, DR. LUDWIG,
 KEAN, HAMILTON FISH,
 KEAN, MRS. HAMILTON FISH,
 KEECH, FRANK B.,
 KEECH, MRS. FRANK B.,
 KEELER, MRS. C. B.,

*DECEASED

KEEN, BARTON L.,
 KEIL, HENRY F.,
 KELCHNER, WILLIAM W.,
 *KELLOGG, J. PRENTICE,
 KELLY, HORACE R.,
 KENNEDY, EDWARD G.,
 KENNEDY, MRS. JOHN STEWART,
 KENNEDY, MRS. H. VAN RENSSELAER,
 KENNERLY, MISS M. M.,
 KENT, EDWIN C.,
 KEPHART, REV. WILLIAM H.,
 KEPPEL, DAVID,
 KERNAN, MRS. WALTER N.,
 KETCHAM, IRVING M.,
 KEUFFEL, W. G.,
 KEYES, MRS. CHARLES W.,
 KEYSER, MRS. SAMUEL,
 KING, AUGUSTUS F.,
 KING, MISS ELLEN,
 KING, MISS ETHEL,
 KING, JAMES GORE,
 KING, MRS. J. HOWARD,
 KING, MRS. LEROY,
 KINGSBURY, NATHAN C.,
 KINGSLAND, MRS. WILLIAM M.,
 KINGSLEY, W. M.,
 KINNEY, WARREN,
 KINNEY, MRS. WARREN,
 KIP, W. RULOFF,
 KIRKHAM, WILLIAM B.,
 KISSEL, MRS. W. THORN,
 KITREDGE, SAMUEL DANA,
 KITZ, JOSEPH,
 KLAW, MARC,
 KLEIN, D. EMIL,
 KLIEN, MILTON M.,
 KLINGENSTEIN, CHARLES,
 KNAPP, ARNOLD,
 KNAPP, MRS. HARRY K., JR.,
 KNAPP, MRS. JOSEPH PALMER,
 KNIGHT, CHARLES R.,
 KNOEDLER, ROLAND F.,
 KOEHLER, H. C.,
 KOHLMAN, CHARLES,
 KOHLSAAT, MISS EDITH M.,
 KOLB, GEORGE C., JR.,
 KOLB, FREDERICK,
 KOLES, DR. HENRY M.,
 KONTA, ALEXANDER,
 KRAUS, SAM,
 KRECH, MRS. ALVIN W.,
 KREMER, MRS. WILLIAM N.,
 KRUNSCHEID, C. D.,
 KUHN, AUGUST,
 KUHN, JULIUS,
 KUNHARDT, HENRY R.,
 KURZMAN, CHARLES C.,
 KUSER, JOHN DRYDEN,

KUSER, JOHN L.,
 KUTTROFF, ADOLF,
 KUTTROFF, FREDERICK,
 LACOMBE, HON. E. HENRY,
 LAGAI, DR. GEORGE,
 LAIENS, MRS. PHEBE P.,
 LAIMBEER, JOHN, JR.,
 LAMBERT, DR. ALEXANDER,
 LAMBERT, DR. A. V. S.,
 LAMBERT, DR. SAMUEL W.,
 LAMBERT, MRS. SAMUEL W.,
 LAMBORN, A. H.,
 LA MONTAGUE, MISS MARIE,
 LAMONT, MRS. THOMAS WILLIAM,
 LANDAUER, I. N.,
 LONDON, FRANCIS G.,
 LANE, MISS ANNIE E.,
 LANE, EDWARD V. Z.,
 LANE, JAMES WARREN,
 LANE, WOLCOTT G.,
 LANGE, MISS CARMEN,
 LANGELOTH, MRS. JACOB,
 LANIER, MRS. JAMES F. D.,
 LAPHAM, MRS. JOHN J.,
 LATTING, CHARLES P.,
 LAUDER, MRS. GEORGE, JR.,
 LAUTERBACH, MRS.,
 LAWRENCE, EMLIN N.,
 LAWRENCE, JOHN BURLING,
 LAWRENCE, JOHN L.,
 LAWRENCE, NEWBOLD T.,
 LAWRENCE, R. WARREN,
 LAWRENCE, MRS. AMORY A.,
 LAWRENCE, HIRAM V.,
 LAWRENCE, TOWNSEND,
 LAWRENCE, MRS. W. W.,
 LAWRENCE, W. V.,
 LAWSON, ARTHUR M.,
 LAWSON, WM. W.,
 LAWTON, MRS. JAMES MARSLAND,
 LEA, CHARLES M.,
 LEACH, HENRY GODDARD,
 LEAVENS, MARION H.,
 LEDLIE, GEORGE,
 LEDOUX, DR. ALBERT R.,
 LEDYARD, MRS. LEWIS C.,
 LEE, MRS. FREDERIC S.,
 LEE, GEORGE C.,
 LEFFERTS, MARSHALL C.,
 LEFKOVICS, MRS. JULIETTE,
 LEGG, GEORGE,
 LEGGETT, WARREN F.,
 LEHMAIER, JAMES M.,
 LEHMAN, MEYER H.,
 LELAND, WILFRED C.,
 LEONHARD, J. HENRY,
 LEROY, EDWARD A.,
 LESLIE, J. C.,

*DECEASED

- LESTER, GEORGE BACON,
 LETKEMANN, H. V.,
 LEVOR, G.,
 *LEWIS, MRS. AUGUST,
 *LEWIS, FREDERIC ELLIOTT,
 *LEWIS, PERCY PYNE,
 LEWIS, DR. WILLIAM J.,
 LEWISOHN, ADOLPH,
 LICHENSTEIN, OSCAR R.,
 LIEB, J. W.,
 LIEBER, DR. HUGO,
 LINCOLN, FREDERIC W.,
 LITCHFIELD, E. HUBERT,
 LITCHFIELD, EDWARD H.,
 LITTAUER, SIEGFRIED,
 LICHENSTEIN, PAUL,
 LIVERMORE, MRS. JOHN R.,
 LLOYD, MRS. J. P.,
 LOEWI, HUGO V.,
 LOEWI, DR. KARL J.,
 LOGAN, FRANK J.,
 LOGAN, WM. J.,
 LOINES, RUSSELL H.,
 LOOMIS, GUY,
 LOUNSBERY, MISS ALICE,
 LOW, ETHELBERT IDE,
 LOW, WILLIAM GILMAN, JR.,
 LOWELL, JAMES B.,
 LOWTHER, CHRISTOPHER M.,
 LUDINGTON, C. H.,
 LUDLAM, MALCOLM C.,
 LUDLOW, MRS. BANYER,
 LUDLUM, C. A.,
 LUEDER, A.,
 LUKE, DAVID L.,
 LUKE, JOHN G.,
 LUSK, PROF. GRAHAM,
 LUTTGEN, WALTHER,
 LYMAN, FRANK,
 LYMAN, MISS GRACE G.,
 LYDIC, MRS. PHILIP,
 McALPIN, H. D.,
 McALPIN, MRS. CHARLES W.,
 McALPIN, MRS. D. HUNTER, JR.,
 McALPIN, GEORGE L.,
 McBRIDE, MRS. HERBERT,
 McCAGG, LOUIS B.,
 McCALL, RICHARD,
 McCoy, J. C.,
 McCrea, W. S.,
 McCreery, Mrs. Henry Forbes,
 McCulloch, J. S.,
 McGREGOR, REV. ROBERT GORDON,
 McKEEVER, J. LAWRENCE,
 McKim, JOHN A.,
 McKim, LEROY,
 McLANE, THOMAS S.,
 McLEAN, JAMES,
 McLEAN, MARSHALL,
 McMANUS, EDWARD F.,
 McNAIR, WILLIAM,
 MAC FADDEN, C. K.,
 MACFARLANE, WALLACE,
 MACK, ARTHUR C.,
 MAC NUTT, MRS. FRANCIS A.,
 MAGEE, JOHN,
 MAGER, F. ROBERT,
 MALE, FRANCIS S.,
 MALI, PIERRE,
 MALI, MRS. PIERRE,
 MANN, WILLIAM D'ALTON,
 MAPES, DANIEL, JR.,
 MAPES, ERNEST S.,
 MAPES, EUGENE E.,
 MARKHAM, ROBERT D.,
 MARCKWALD, ALBERT H.,
 MARKOE, HARRY,
 MARKOE, DR. J. W.,
 MARSHALL, A. W. W.,
 MARSHALL, MRS. CHAUNCEY,
 MARSH, CHARLES CAPRON,
 MARSTON, EDWIN S.,
 MARTIN, BRADLEY, JR.,
 MARTIN, MRS. SHELTON E.,
 MARTIN, DR. WALTON,
 MARTIN, MRS. HOWARD TOWNSEND,
 *MARTINEZ, MIGUEL R.,
 MARYE, R. V.,
 MASTEN, ARTHUR H.,
 MASTERS, FRANCIS R.,
 MASTERS, MISS,
 MATHER, SAMUEL,
 MATHEUS, MRS. WILBUR K.,
 MATHEWSON, CHARLES E.,
 MATZKE, ADOLPH,
 MAXWELL, GEORGE T.,
 MAXWELL, HOWARD W.,
 MAYER, B.,
 MAYER, JESSE,
 MAYER, JOS. B.,
 *MAYER, MRS. JOSEPH B.,
 MAYNARD, MRS. WALTER E.,
 MEADE, RICHARD W.,
 MEEKER, HENRY E.,
 MEEM, JAMES C.,
 MEHL, HENRY,
 MEINHARD, MORTON H.,
 MELOY, ANDREW D.,
 MESSENGER, MISS MARIA GERARD,
 MEYER, EUGENE, JR.,
 MEYER, DR. GEORGE W.,
 MEYER, MISS HELOISE,
 MEYROWITZ, EMIL B.,
 MIEHLING, CHARLES,
 MILBURN, JOHN G.,
 MILLER, MRS. ELIZABETH C. T.,

*DECEASED

MILLER, MRS. CYRUS C.,
 MILLER, MRS. CHARLES E.,
 MILLER, NATHAN J.,
 MILLER, PEYTON F.,
 MILLER, W. W.,
 MILLET, MRS. F. D.,
 MILLETT, S. C.,
 MILLIKEN, MRS. GERRISH H.,
 MILLS, ABRAHAM G.,
 MILLS, ANDREW,
 MILLS, FREDERIC C.,
 MILMINE, C. E.,
 *MONTANT, ALPHONSE,
 MONTGOMERY, CARLETON,
 MOORE, MRS. BARRINGTON,
 MOORE, CASIMIR DER.,
 MOORE, MRS. CASIMIR DER.,
 MOORE, CHARLES ARTHUR, JR.,
 MOORE, MISS K. T.,
 MOORHEAD, HORACE R.,
 MORAWETZ, VICTOR,
 MORGAN, MISS ANNE,
 MORGAN, MISS C. L.,
 MORGAN, EDWIN D.,
 MORGAN, MRS. J. B.,
 MORGAN, MRS. PIERPONT,
 MORGAN, JUNIUS S., JR.,
 MORGAN, JUNIUS S.,
 MORGAN, WILLIAM FELLOWES,
 MORGAN, WILLIAM FORBES, JR.,
 MORRIS, DAVE H.,
 MORRIS, GOUVERNEUR,
 MORRIS, LEWIS SPENCER,
 MORRISON, N. H.,
 MORTON, MRS. PAUL,
 MOSLE, A. HENRY,
 MOSS, ERNEST J.,
 MOTLEY, JAS. M.,
 MOTT, HENRY C.,
 MOTT, MRS. JOHN BOWNE,
 MOULTON, ARTHUR J.,
 MUELLER, CHARLES F.,
 MULLER, CARL,
 MUEHLFELD, FRANK J.,
 MULHALL, MISS SARAH G.,
 MUNN, CHARLES A.,
 MUNROE, HENRY W.,
 MUNSEY, FRANK A.,
 MURGATROYD, JOHN,
 MURTHA, THOMAS F.,
 MURPHY, MRS. FELIX TONE,
 MUSCHENHEIM, FRED A.,
 MYERS, WILLIAM S.,
 NADAL, MRS. CIHAS. C.,
 *NAEGELI, ROBERT,
 NELSON, DR. HOWARD S.,
 NELSON, WALLACE PLATT,
 NELLES, HUGO C.,

NELSON, JAMES W.,
 NESMITH, JAMES,
 NEUMOEGEN, M. L.,
 NEUMOEGEN, MRS. M. L.,
 NEUSTADT, MRS. S.,
 NEWCOMBE, MRS. CHARLES M.,
 NICHOLS, ACOSTA,
 NICHOLS, JOHN W. T.,
 NICOLL, BENJAMIN,
 NICOLL, MRS. BENJAMIN,
 NILES, ROBERT L.,
 NOLKER, ROBERT E.,
 NORMAN, MRS. BRADFORD,
 NORRIE, MISS MARY,
 NORRIE, MRS. E. L. BREESE,
 NORTH, GEORGE B.,
 NORTON, W. P.,
 NOTMAN, GEORGE,
 OBERMAYER, CHARLES J.,
 O'BRIEN, PERCY,
 O'CONNELL, DR. J. H.,
 O'CONNOR, JAMES B.,
 OCHS, ADOLPH S.,
 OETTINGER, DR. P. J.,
 OFFERMAN, JOHN,
 OGDEN, CHARLES W.,
 OGDEN, DAVID B.,
 OGDEN, J. R.,
 OGDEN, MISS MARY F.,
 OHMEIS, JOHN,
 OHMEIS, P. M.,
 OLCOTT, DUDLEY,
 OLCOTT, DUDLEY, 2ND,
 OLCOTT, E. E.,
 OLIN, MRS. STEPHEN H.,
 OLNEY, ELAM WARD,
 OLYPHANT, ROBERT,
 ONATIVIA, J. VICTOR,
 OPENHYM, GEORGE J.,
 OPPENHEIMER, DR. HENRY S.,
 OPPENHEIMER, DAVID E.,
 ORDWAY, SAMUEL H.,
 ORTH, CHARLES D.,
 OTTINGER, MARX,
 OTTLEY, JAMES H.,
 OUTERBRIDGE, MRS. ADOLPH J.,
 OUTERBRIDGE, DR. PAUL,
 PACKARD, MRS. E. WINSLOW,
 PAGE, WILLIAM H.,
 PAINE, MRS. AUGUSTUS G.,
 PAINTER, DR. H. MCM.,
 PALMER, EDGAR,
 PALMER, DR. T. S.,
 PARISH, WAINWRIGHT,
 PARISH, MRS. EDWARD C.,
 PARKER, A. W.,
 PARKER, EDWARD LUDLOW,
 PARKER, JUNIUS,

*DECEASED

- PARKER, WINTHROP,
 PARPART, WILLIAM E.,
 PARSONS, MISS GERTRUDE,
 PARSONS, HERBERT,
 PARSONS, MRS. JOHN E.,
 PARSONS, MISS MARY,
 PARSONS, WILLIAM BARCLAY,
 PARTRIDGE, EDWARD L.,
 PATON, DAVID,
 PATTERSON, HENRY STUART,
 PATTERSON, T. H. HOGE,
 PAYNE, MRS. HENRY W.,
 PEABODY, STEPHEN,
 PEARSON, MRS. FREDERICK,
 PEASE, J. GRANT,
 PECK, CHARLES E.,
 PECK, LEICESTER O.,
 PECKHAM, MISS MARIE LOUISE,
 PEGRAM, EDWARD S.,
 PENDLETON, FRANCIS KEY,
 PENFOLD, EDMUND,
 PENROSE, DR. CHARLES B.,
 PERCIVAL, L. A. D.,
 PERKINS, ROBERT P.,
 PERRY, MRS. WILLIAM A.,
 PETERS, MRS. CHARLES G.,
 PETERS, WILLIAM RICHMOND,
 PFEIFFER, CURT G.,
 PFEIFFER, GEORGE,
 PFORZHEIMER, CARL H.,
 PHELPS, MRS. ANSEL,
 PHELPS, DR. GOUVERNEUR M.,
 PIATTI, DR. VIRGIL C.,
 PICKHARDT, CARL,
 PIEL, GOTTFRIED,
 PIEL, MICHAEL,
 PIERREPONT, MISS ANNA JAY,
 PIERREPONT, R. STUYVESANT,
 PIERSON, GEN. J. FRED,
 PILLOT, P. STUYVESANT,
 PINCHOT, GIFFORD,
 PITNEY, MRS. J. O. H.,
 PLATT, CHARLES H.,
 PLATT, FRANK H.,
 PLATT, HENRY B.,
 PLATT, LIVINGSTON,
 PLATEN, J. W.,
 *POLK, DR. WILLIAM M.,
 *POLLOCK, GEORGE F.,
 POMEROY, DANIEL E.,
 POMROY, MRS. H. K.,
 POND, MISS FLORENCE L.,
 POOR, HENRY V.,
 POOR, ROGER M.,
 POPE, G. D.,
 PORTER, ALEXANDER J.,
 PORTER, HORACE,
 PORTER, LOUIS H.,
 PORTER, WILLIAM L.,
 POST, ABRAM S.,
 POST, MRS. CHARLES ALFRED,
 POST, GEORGE B.,
 POST, WILLIAM H.,
 POTTER, MISS BLANCHIE,
 POTTER, EDWARD CLARKSON,
 POTTER, FREDERICK,
 POTTER, JAMES BROWN,
 POTTER, ORLANDO B.,
 POTTER, R. BURNSIDE,
 POTTER, MRS. R. BURNSIDE,
 POTTER, FULLER,
 POTTS, WILLIAM BREVOORT,
 PRATT, ALBERT H.,
 PRATT, GEORGE D.,
 PRATT, H. L.,
 PRATT, JOHN T.,
 PRATT, MRS. JOHN T.,
 PRATT, SAMUEL,
 PRENTICE, JOHN HILL,
 PRENTISS, MISS HENRIETTA,
 PRESTON, VERYL,
 PRIDDY, LAWRENCE,
 PRIME, MISS CORNELIA,
 PRINCE, EDWARD S.,
 PROCTER, WILLIAM,
 PROCTOR, MRS. CHARLES E.,
 PROCTOR, MRS. MARIA W. W.,
 PROCTOR, THOMAS R.,
 PROCTOR, WM. ROSS,
 PROVOST, MRS. CORNELIUS W.,
 PULTZER, MRS. JOSEPH,
 PULSIFER, MRS. N. T.,
 PUTNAM, IRVING,
 PYLE, D. H. McALPIN,
 PYLE, MRS. JAMES TOLMAN,
 PYNE, MRS. M. TAYLOR,
 QUINCY, CHARLES F.,
 QUINTARD, DR. EDWARD,
 RANDOLPH, WILLIAM W.,
 RANFT, RICHARD,
 RANGER, STANLEY,
 RASMUS, W. T.,
 RASMUS, W.,
 RATHBORNE, RICHARD C.,
 RAUCH, WILLIAM,
 RAYNOR, IRVING,
 RAYMOND, H. E.,
 READ, MRS. WILLIAM A.,
 REDMOND, MISS E.,
 REDMOND, MRS. HENRY S.,
 REEDS, CHESTER A.,
 REEVES, MARK W.,
 REID, JOHN,
 REID, OGDEN MILLS,
 REID, MRS. OGDEN MILLS,
 REID, WALLACE,

*DECEASED

- REINHARDT, GEORGE N.,
 REISINGER, CURT H.,
 REMINGTON, FRANKLIN,
 REMSEN, CHARLES,
 RENSRAW, HOWARD PRICE,
 REYNOLDS, E. B.,
 REYNAL, MRS. NATHANIEL C.,
 RHETT, MISS FLORENCE,
 RIINELANDER, PHILIP,
 RICE, CHARLES G.,
 RICHARD, MISS ELVINE,
 RICHARD, O. L.,
 RICHARD, EDWIN A.,
 RICHARDS, CHARLES A.,
 RICHARDS, EBEN,
 RICHARDS, E. O.,
 RICHARDSON, MRS. C. TIFFANY,
 RICHARDSON, MRS. D. E.,
 RIGGS, GEO. C.,
 RIKER, WM. J.,
 RIPLEY, JULIEN A.,
 RIPPE, MRS. E. J.,
 ROBB, MRS. N. THAYER,
 ROBBINS, CHANDLER,
 ROBBINS, MRS. HELEN C.,
 ROBERTS, G. THEODORE,
 ROBERTS, MRS. CHARLES H.,
 ROBERTS, MISS GRACE VAN BRAAM,
 *ROBERTS, MISS M. M.,
 ROBERTS, OWEN F.,
 ROBERTSON, ALBERT,
 ROBERTSON, L. J.,
 ROBERTSON, R. H.,
 ROBINSON, MRS. DOUGLAS,
 ROBINSON, EDWARD,
 ROBINSON, G. H.,
 ROBINSON, MISS PAULINE,
 ROBISON, WILLIAM,
 ROCHE, MRS. BURKE,
 ROCKEFELLER, MRS. WILLIAM G.,
 ROCKEFELLER, MRS. J. D., JR.,
 ROCKWOOD, WILLIAM H.,
 RODEWALD, F. L.,
 ROE, CHARLES F.,
 ROE, FRANK O.,
 ROE, IRVING L.,
 ROGERS, E. L.,
 ROGERS, CHAS. F.,
 ROGERS, MRS. CHAS. F.,
 ROGERS, MRS. FRANCIS,
 ROGERS, HUBERT E.,
 ROGERS, MRS. WILLIAM BEVERLEY,
 ROKENBAUGH, HENRY S.,
 ROLLE, AUGUSTUS J.,
 ROLLINS, FRANK S.,
 ROMBOUGH, JOHN B.,
 ROOF, CLARENCE M.,
 ROOSEVELT, MRS. JAMES,
 ROOSEVELT, MRS. HILBORNE L.,
 ROOSEVELT, W. EMLEN,
 ROOT, ELIHU,
 ROSE, MRS. A. SUMNER,
 ROTH, FREDERICK G. R.,
 ROTH, J. E.,
 ROTHBARTH, ALBERT,
 ROTHLAUF, REV. ANTHONY J.,
 ROTHWELL, JAMES E.,
 ROWLAND, THOMAS,
 RUHE, LOUIS,
 RUHL, LOUIS,
 RUMSEY, MRS. CHARLES CARY,
 RUNYON, CARMAN R.,
 RUNYON, E. W.,
 RUNYON, WALTER C.,
 RUPERT, JUSTUS,
 RUPPERT, MRS. JACOB,
 *RUSSELL, ARCHIBALD D.,
 RUSSELL, MRS. HORACE,
 RUSSELL, DR. JOHN F.,
 RYAN, JOHN BARRY,
 RYAN, MRS. THOMAS F.,
 RYLE, ARTHUR,
 RYLE, GRAHAM,
 SACHS, ARTHUR,
 SACKETT, MISS HELEN H.,
 SAGE, JOHN H.,
 SAMPSON, ALDEN,
 SAMPSON, CHARLES E.,
 SANDHAGEN, H.,
 SANDS, MISS ANNE A.,
 SANDS, MRS. BENJAMIN AYMAR,
 SANGER, MRS. RALPH,
 SARG, F. A.,
 SARGENT, HENRY B.,
 SARGENT, GEORGE LLOYD,
 SATTERLEE, MRS. H. L.,
 SATTERWHITE, PRESTON P.,
 *SAUTER, FREDERICK,
 SAUTER, FRED, JR.,
 SCARBURGH, ROBERT S.,
 SCHAEFER, ANDREAS F.,
 SCHAEFER, EDWARD C.,
 SCHAEFER, HENRY,
 SCHALL, W.,
 SCHANK, GEORGE E.,
 SCHAE, C. F.,
 *SCHAUFFLER, DR. A. F.,
 SCHAUFFLER, MRS. A. F.,
 SCHEFER, ANTON H.,
 SCHENCK, HENRY DEB.,
 SCHENER, A. L.,
 SCHIFF, GUSTAV H.,
 SCHIEFFELIN, MRS. H. M.,
 SCHIEFFELIN, WILLIAM JAY,
 SCHIMMEL, SIEGFRIED,
 *SCHIRMER, RUDOLPH E.,

*DECEASED

- SCHLICKER, CARL P.,
 SCHMELZEL, GEORGE,
 SCHMELZEL, MISS JANE E.,
 SCHMELZEL, JAMES H.,
 SCHMIDT, WILLIAM P.,
 SCHMIDT, WILLIAM H.,
 SCHMIDT, FEDOR,
 SCHNABEL, R. A.,
 SCHNAKENBERG, D.,
 SCHNIEWIND, EWALD H.,
 SCHNIEWIND, H., JR.,
 SCHOEN, CARL,
 SCHOLLE, A. H.,
 SCHRAG, CHARLES A.,
 SCHRAG, LOUIS,
 SCHREITER, HENRY,
 SCHUYLER, MISS LOUISA LEE,
 SCHWAB, HENRY B. DE V.,
 SCHWARTZ, LEWIS F.,
 SCHWARZ, HERBERT F.,
 SCHWARZ, HENRY F.,
 SCHWARZLER, ALBERT J.,
 SCOFIELD, MISS MARION,
 SCOTT, DONALD,
 SCOTT, HON. FRANCIS M.,
 SCOTT, MRS. FRANK H.,
 SCOTT, THOMAS BLYTHE,
 SCOTT, WILLIAM,
 SCOVILLE, HERBERT,
 SCOVILLE, ROBERT,
 SCRIBNER, ARTHUR H.,
 SCRIBNER, CHARLES,
 SCRIBNER, MRS. CHARLES,
 SCRYMSER, MRS. JAMES A.,
 SEAMAN, DR. LOUIS I.,
 SEDGWICK, ROBERT,
 SEE, A. B.,
 SEIDENBERG, OTTO,
 SELIGMAN, A. J.,
 SELIGMAN, GEORGE W.,
 SELIGMAN, JEFFERSON,
 SELIGMAN, JOSEPH L.,
 SELIGMAN, MRS. ISAAC N.,
 SENFF, MRS. CHARLES H.,
 SETON, ALFRED,
 SEXTON, LAWRENCE E.,
 SHATTUCK, A. R.,
 SHAW, FRANK A.,
 SHEETS, DR. E. A.,
 *SHEEHAN, WILLIAM,
 SHEEHAN, MRS. WILLIAM F.,
 SHEFFIELD, JAMES R.,
 SHEFFIELD, MRS. JAMES R.,
 SHELDON, EDWARD W.,
 *SHELDON, GEORGE R.,
 SHELDON, WILLIAM C.,
 SHEPARD, DR. GEORGE A.,
 SHEPARD, FINLEY J.,
 SHEPARD, MRS. ELLIOTT F.,
 SHEPARD, MISS ANNIE R.,
 SHIMON, DAVID,
 SHIPMAN, RICHARD D.,
 SHIPWAY, SAMUEL W.,
 SHOEMAKER, HENRY W.,
 SHONNARD, HORATIO S.,
 SHULHOF, OTTO B.,
 SIBLEY, MRS. H. W.,
 SIEDENBURG, REINHARD, JR.,
 SIEGEL, JACOB,
 SIEGEL, WILLIAM,
 SILLECK, HENRY G., JR.,
 SILLECK, MRS. HENRY G., JR.,
 SILLIMAN, JAMES R.,
 SILLIMAN, HARPER,
 SMALL, ALFRED L.,
 SIMON, ROBERT E.,
 SIMON, THEO. A.,
 SIMPSON, JOHN W.,
 SIMPSON, ERNEST L.,
 SINCLAIR, MRS. JOHN,
 SINCLAIR, MRS. WILLIAM,
 SINGER, ARTHUR J.,
 SKEEL, DR. FRANK D.,
 SKINNER, M. P.,
 SLADE, FRANCIS LOUIS,
 SLAUGHTER, R. B.,
 SLAVEN, RALPH E.,
 SLOAN, MRS. SAMUEL,
 SLOCUM, H. J., JR.,
 SLOCUM, COL. J. J.,
 SLOCUM, THOMAS W.,
 SLOSS, A. M.,
 SMIDT, THOMAS,
 SMILEY, DANIEL,
 SMILLIE, JAMES C.,
 SMILLIE, RALPH,
 SMITH, AUGUSTINE J.,
 SMITH, C. HAROLD,
 SMITH, MRS. CHARLES S.,
 SMITH, ELIAS D.,
 SMITH, PIERRE J.,
 SMITH, ROBERT K.,
 SMITHERS, CHARLES,
 SMITHERS, F. S.,
 SNOW, E. G.,
 SNYDER, VALENTINE P.,
 SOLDWEDL, FREDERICK A.,
 SONDHEIM, PHEINAS,
 SORCHAN, MRS. VICTOR,
 SOULE, LOUIS H.,
 SPALDING, KEITH,
 SPALDING, H. BOARDMAN,
 SPARROW, MRS. EDWARD W.,
 SPEAR, JAMES, JR.,
 SPEDDEN, FREDERIC O.,
 SPENCER, MRS. EDWARDS,

*DECEASED

- SPENCER, ALEXANDER H.,
 SPERRY, WILLIAM M.,
 SPEYER, MRS. JAMES,
 SPITZNER, GEORGE W.,
 SPOFFORD, MRS. J. L.,
 SPRAGUE, MRS. FRANK J.,
 SPRIGG, JUDGE CARROLL,
 SPRING, MISS ANNA RIKER,
 SPRINGS, RICHARD A.,
 SPURR, E. W.,
 SQUIBB, DR. EDWARD H.,
 SQUIRE, EBEN H. P.,
 STAFFORD, WILLIAM FREDERICK,
 STAFFORD, MRS. WILLIAM FREDERICK,
 STAHL, ADOLFO,
 STALLFORTH, F.,
 STANTON, FRANK McMILLAN,
 STANTON, JOHN R.,
 STAPLES, MRS. JOHN J.,
 STARR, LOUIS MORRIS,
 STEARNS, LOUIS,
 STEELE, CHARLES,
 STEELE, MRS. CHARLES,
 STEERS, J. RICH,
 STEIN, MRS. ALEXIS W.,
 STEINECK, EDWARD,
 STEINHARDT, JOSEPH H.,
 STEINMETZ, JOHN A.,
 STEPHENS, OLIN J.,
 STEPHENS, RODERICK,
 STERN, BENJAMIN,
 *STEVENS, ALEXANDER H.,
 STEVENS, FREDERIC W.,
 STEVENS, OSCAR E.,
 *STEVENS, RICHARD,
 STEVENS, MRS. RICHARD,
 STEWART, CECIL P.,
 STEWART, ELWIN K.,
 STEWART, WILLIAM R.,
 STICKELS, EDWARD H.,
 STILLMAN, CHAUNCEY,
 STILLMAN, MRS. C. C.,
 STILLMAN, JOSEPH F.,
 STILLMAN, JAMES A.,
 STIMPSON, EDWIN B.,
 STIMSON, DR. DANIEL M.,
 STOKES, F. A.,
 STOKES, MRS. JAMES,
 STONE, MISS ANNIE,
 STONE, CHARLES A.,
 STONE, MISS ELLEN J.,
 STOUT, JOSEPH S.,
 STOUT, ANDREW V.,
 STOW, GEORGE G.,
 STRAIGHT, WILLARD,
 STRANGE, A. B.,
 STRAUS, H. GRANT,
 STRAUS, MRS. NATHAN, JR.,
 STRAUS, PERCY S.,
 STRAUSS, ALBERT,
 STRAUSS, FREDERICK,
 STRAUSS, CHARLES,
 STRAUSS, MARTIN,
 STREAT, JAMES,
 STREET, W. A.,
 STROHMAYER, F. G.,
 STRONG, BENJAMIN, JR.,
 STRONG, RICHARD A.,
 STROOCK, JOSEPH,
 STROOCK, LOUIS S.,
 STRUTHERS, DUNCAN,
 STUART, ROBERT,
 STURGES, HENRY C.,
 SUCKLEY, MRS. R. B.,
 SULLIVAN, MRS. JAMES,
 SUTRO, LIONEL,
 SUYDAM, LAMBERT,
 SWAN, MRS. J. ANDREWS,
 SWAN, JAMES A.,
 SWANSON, DR. F. J.,
 SWANZY, MRS. FRANCIS MILLS,
 SWAYNE, MRS. FRANCIS B.,
 SWENSON, S. A.,
 SWORDS, WILLIAM VOORHIS,
 SYMS, DR. PARKER,
 TABER, MISS MARY,
 TABOR, F. H.,
 TAFT, HENRY W.,
 TAG, ALBERT,
 TAKAMINE, JOKICHI, JR.,
 TALCOTT, MRS. JAMES,
 TALMAGE, MRS. E. T. II.,
 TANENBAUM, MOSES,
 TATHAM, CHARLES,
 TAUSSIG, NOAH W.,
 TAYLOR, MRS. HENRY OSBORN,
 TAYLOR, HENRY R.,
 TAYLOR, JAMES B.,
 TAYLOR, LLOYD,
 TAYLOR, MOSES,
 TAYLOR, WILLIAM R. K.,
 TAYLOR, ROBERT C.,
 TAYLOR, WILLIAM A.,
 *TENNEY, C. H.,
 TENNEY, DANIEL G.,
 TERRY, MRS. JOHN T.,
 TERRY, RODERICK, JR.,
 TERRY, WYLLYS,
 THACHER, ARCHIBALD G.,
 THACHER, MRS. GEORGE W.,
 THACHER, THOMAS,
 THAW, J. C.,
 THAYER, HARRY BATES,
 THEBAUD, MRS. PAUL,
 THOMAS, MRS. HOWARD L.,
 THOMAS, SETH E., JR.,

*DECEASED

- THOMPSON, ARTHUR G.,
 THOMPSON, FERRINGTON M.,
 *THOMPSON, LA MARCUS A.,
 THOMPSON, MRS. J. TODHUNTER,
 THOMPSON, WILLIAM BOYCE,
 THOMSON, GIRAUD F.,
 THORLEY, CHARLES,
 THORNE, MRS. EDWIN,
 THORNE, CHAS. STOCKTON,
 THORNE, JONATHAN,
 THORNE, MRS. JONATHAN,
 THORNE, MRS. W. V. S.,
 THURBER, H. F.,
 THURSBY, SIDNEY,
 TIEDEMAN, HENRY F.,
 TIEDEMAN, THEODORE,
 TIERS, MRS. ALEXANDER H.,
 TIFFANY, LOUIS C.,
 TILFORD, MRS. HENRY MORGAN,
 TILT, ALBERT,
 TILTON, JOSEPH W.,
 TIMMERMAN, HENRY G.,
 TIMOLAT, JAMES G.,
 TIMPSON, JAMES,
 TOD, J. KENNEDY,
 TODD, M. PARSONS,
 TODD, WALTER B.,
 TODD, JOHN R.,
 TONNELE, MRS. JOHN N.,
 TOWNES, M. G.,
 TOWNSEND, MISS AMY C.,
 TOWNSEND, MRS. E. M.,
 TOWNSEND, EDWIN S.,
 TOWNSEND, H. N.,
 TOWNSEND, HOWARD,
 TOWNSEND, MRS. JAMES M.,
 TOWNSEND, ISAAC,
 TOWNSEND, JAMES B.,
 TOWNSEND, J. H.,
 TRENCH, CHARLES S.,
 TRIMBLE, MRS. RICHARD,
 TROESCHER, A. F.,
 *TROWBRIDGE, FREDERICK K.,
 TUCKER, MRS. AGNES J.,
 TUCKER, CARL,
 TUCKERMAN, ALFRED,
 TUCKERMAN, PAUL,
 TURNBULL, ARTHUR,
 TURNBULL, MRS. RAMSAY,
 TURNBULL, WILLIAM,
 TURNURE, GEORGE E.,
 TUSKA, BENJAMIN,
 TWEED, MRS. CHARLES H.,
 TWINING, E. S.,
 UHL, OSWALD W.,
 UPMANN, CARL,
 VALENTINE, MRS. PATRICK A.,
 VALENTINE, DR. WILLIAM A.,
 VAN BEUREN, FREDERICK T., JR.,
 VAN CORTLANDT, AUGUSTUS,
 VAN COTT, HARVEY A.,
 VANDERBENT, TEUNIS J.,
 VANDERGRIFT, S. H.,
 VANDERPOEL, AMBROSE E.,
 VANDERPOEL, MRS. JOHN A.,
 VANDERLIP, FRANK A.,
 VAN DER SMISSEN, DR. G. J.,
 VAN GERBIG, BAREND,
 VAN INGEN, MRS. EDWARD,
 VAN INGEN, MRS. E. H.,
 VAN NORDEN, OTTOMAR H.,
 VAN NOSTRAND, B. T.,
 VAN SINDEREN, HOWARD,
 VAN SLYCK, GEORGE W.,
 VAN WINKLE, EDGAR B.,
 VARIAN, WILBUR L.,
 VELTEN, WILLIAM F.,
 VERNAY, ARTHUR S.,
 VERNON, MRS. CATHERINE D.,
 VESPER, KARL H.,
 VIETOR, THOMAS F.,
 VILLA, ALFONSO P.,
 VIRGIN, DR. FREDERIC O.,
 VOGEL, HERMAN,
 VOIGHT, WILLIAM L.,
 VON BERNUTH, FREDERICK A.,
 VON GONTARD, MRS. ALEXANDER,
 VON LENGERKE, JUSTUS,
 VON ZEDLITZ, MRS. ANNA M.,
 VUILLEUMIER, DR. JULES A.,
 WAGNER, CHARLES H.,
 WAGSTAFF, MRS. ALFRED,
 *WAGSTAFF, C. DUBOIS,
 WAINWRIGHT, MRS. J. HOWARD,
 WAKELEE, JUSTUS I.,
 WALBRIDGE, HENRY D.,
 WALCOTT, FREDERIC C.,
 WALDO, R.,
 WALES, EDWARD H.,
 WALKER, E. R.,
 WALKER, JOSEPH, JR.,
 WALKER, BRYANT,
 WALKER, GUSTAVUS A.,
 WALLER, STEWART,
 WALLERSTEIN, DR. MAX,
 WALSH, MRS. JULIUS, JR.,
 *WALSH, SAMUEL A.,
 WALTER, EDGAR,
 WALTER, MARTIN,
 WALTER, WILLIAM I.,
 WALTY, A. R.,
 WARBURG, PAUL M.,
 WARD, ARTEMAS,
 WARDNER, HENRY STEELE,
 WARDWELL, ALLEN,
 WARENDORFF, HERMAN,

*DECEASED

WARNOCK, JAMES K.,
 WARREN, GEORGE H.,
 WARREN, Mrs. J. HOBART,
 WARREN, LLOYD,
 WASHBURN, THOMAS G.,
 WASHBURN, WM. IVES,
 WATERBURY, JOHN I.,
 WATERBURY, MISS,
 WATRISS, Mrs. HELEN B.,
 WATSON, Mrs. J. HENRY,
 WATSON, CHARLES F.,
 WATT, THOMAS L.,
 WEATHERBEE, Mrs. EDWIN H.,
 WEBB, Mrs. ALEXANDER S.,
 WEBB, F. EGERTON,
 WEBB, J. GRISWOLD,
 WEBB, Mrs. VANDERBILT,
 WEBB, Mrs. WILLIAM SEWARD,
 WEEKS, JOHN E.,
 WEEKS, JAMES,
 WEIGLE, CHARLES H.,
 WEILER, Mrs. JULIA O.,
 WEINIG, BERNARD,
 WEISS, JULIUS,
 WEITLING, WILLIAM W.,
 WELCH, HENRY K. M.,
 WELCH, Mrs. S. CHARLES,
 WELLS, Mrs. JOHN,
 WELLS, OLIVER J.,
 WESSEL, J. HENRY,
 WESSELL, ARTHUR L.,
 WEST, DR. WILLIAM,
 WESTOVER, M. F.,
 WHARTON, MISS N. C.,
 WHEELOCK, Mrs. G. G.,
 WHEELOCK, WM. H.,
 WHITE, A. M.,
 WHITE, HAROLD T.,
 WHITE, LEONARD D.,
 WHITE, Mrs. STANFORD,
 WHITEHOUSE, J. HENRY,
 WHITEHOUSE, NORMAN,
 WHITEHOUSE, WILLIAM F.,
 WHITING, DR. CHARLES A.,
 WHITING, H. F.,
 WHITING, Miss GERTRUDE,
 WHITMAN, CLARENCE,
 WHITMAN, WILLIAM, JR.,
 WHITEMORE, HOWARD,
 WIBORG, F. B.,
 WICKERSHAM, GEORGE W.,

WIGGLESWORTH, HENRY,
 WILKINS, F. H.,
 WILLCOX, WILLIAM G.,
 WILLIAMS, ALEX S.,
 WILLIAMS, ARTHUR,
 WILLIAMS, C. S.,
 WILLIAMS, CLARENCE E.,
 *WILLIAMS, GEORGE L.,
 WILLIAMS, Mrs. PERCY H.,
 WILLIAMS, RICHARD H., JR.,
 WILLIAMS, WILLIAM,
 WILLIAMS, WILLIAM H.,
 WILLIAMSON, Mrs. BUTLER,
 WILLIS, W. P.,
 WILLISTON, JAMES R.,
 WILSON, JAMES GODFREY,
 WILSON, M. ORME,
 WINGATE, GEORGE W.,
 WINTER, EMIL,
 WINTER, JULIUS,
 WINTHROP, EGERTON L., JR.,
 WISNER, CHARLES,
 *WITHERBEE, FRANK S.,
 WITHERBEE, Mrs. FRANK S.,
 *WITTHAUS, DR. RUDOLPH A.,
 WITTMAN, JOSEPH,
 WOOD, ARNOLD,
 WOOD, GILBERT CONGDON,
 WOOD, J. WALTER,
 WOOD, WILLIAM CONGDON,
 WOODHOUSE COMPANY, J. S.,
 WOODHOUSE, Mrs. JOSEPH S.,
 WOODRUFF, ALBERT C.,
 WOODWARD, KENNETH N.,
 WOODWARD, Mrs. WILLIAM,
 *WOODWARD, Mrs. WILLIAM, SR.,
 WOOLEY, C. M.,
 WORCESTER, WILFRED J.,
 WORK, BERTRAM G.,
 *WORRALL, P. B.,
 WORTLEY, R. M. STUART,
 WRIGHTSMAN, C. J.,
 WULP, WM. C.,
 WYCKOFF, Mrs. PETER BROWN,
 YORKE, GEORGE M.,
 YOUNG, A. MURRAY,
 YOUNG, Mrs. A. MURRAY,
 ZABRISKIE, GEORGE A.,
 ZEHNDER, C. H.,
 ZINN, GEORGE,
 ZINSSER, AUGUST,

ZOLLER, CHARLES,

*DECEASED

Corresponding Members

DELACOUR, LIEUT. JEAN,
 FERNANDES, B. A.,
 GILFEDDER, T. P.,
 GILLESPIE, T. H.,

JOHNSTON, SIR HARRY H.,
 LESOUËF, W. H. DUDLEY,
 MILLWARD, RUSSELL HASTINGS,
 STURTEVANT, LIEUT. C. G.,
 TYRWHITT-DRAKE, G.

Ladies' Auxiliary

April, 1919.

ADEE, MISS E. L.,
 BAKER, MRS. GEO. F., JR.
 CLARK, MRS. GEO. C.,
 CLARK, MRS. J. F. A.,
 CUYLER, MISS,
 FIELD, MRS. WM. B. O.,
 GRANT, MRS. DEFOREST,
 HAMILTON, MRS. WM. P.,
 HARRIMAN, MRS. J. BORDEN,
 HOYT, MRS. HENRY R.,
 HASTINGS, MRS. THOS.,
 ISELIN, MRS. ARTHUR,
 MORGAN, MRS. PIERPONT,
 MORGAN, MISS ANNE,
 MAYNARD, MRS. WALTER E.,
 MARTIN, MRS. SHELTON,
 NILES, MRS. WM. WHITE,
 OLIN, MRS. STEPHEN H.,

OSBORN, MRS. H. FAIRFIELD, CHAIR-
 MAN,
 PARSONS, MISS,
 PYNE, MRS. PERCY R.,
 ROCKEFELLER, MRS. WM., JR.,
 RHETT, MISS,
 ROBINSON, MISS PAULINE,
 STEVENS, MRS. RICHARD,
 SANGER, MRS. RALPH,
 SHEPARD, MRS. FINLEY J.,
 SPEYER, MRS. JAMES,
 TILFORD, MRS. HENRY M.,
 TRIMBLE, MRS. RICHARD,
 TOWNSEND, MRS. E. M.,
 TOWNSEND, MISS AMY,
 THORNE, MRS. WM. V. S.,
 WEBB, MRS. ALEXANDER S.,
 WOODWARD, MRS. WM.

Summary of Membership

Benefactors	6
Founders in Perpetuity	17
Founders	14
Associate Founders	9
Patrons	31
Life Members	319
Fellows	36
Annual Members	1,924
Honorary and Corresponding Members	15
Ladies' Auxiliary	35
	<hr/>
	2,406

Qualification for Regular Membership

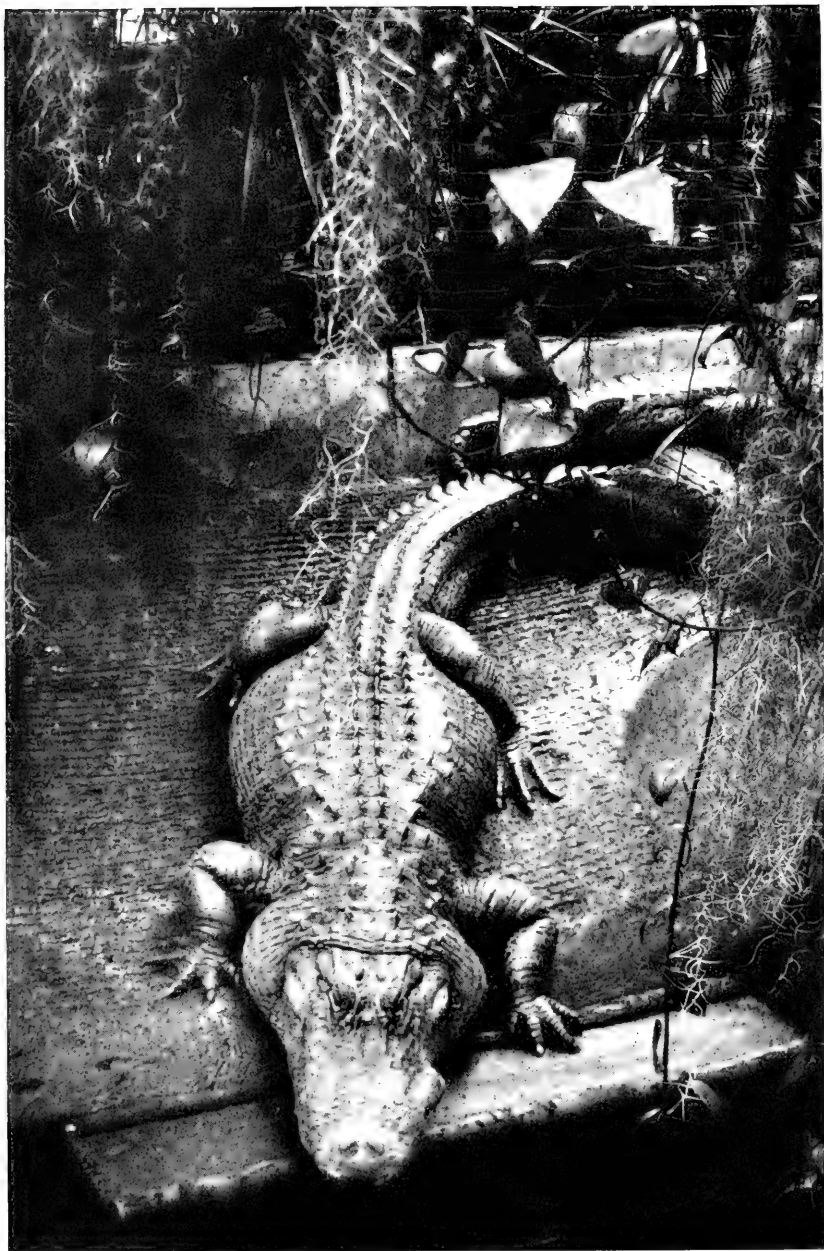
Annual Members	\$ 10	Associate Founders	\$ 2,500
Life Members	200	Founders	5,000
Patrons	1,000	Founders in Perpetuity	10,000
	Benefactors		\$25,000

Form of Bequest

I do hereby give and bequeath to the "NEW YORK ZOOLOGICAL SOCIETY," of the City of New York,

.....

.....



THE LARGEST ALLIGATOR IN THE REPTILE HOUSE

This specimen was born and reared in the Park.

From a photograph by Elwin R. Sanborn.

REPORT OF
THE EXECUTIVE COMMITTEE

TO THE BOARD OF MANAGERS.

THE Executive Committee respectfully submit the following report to the Board of Managers for the year 1919:

The Committee regret to be obliged to announce the death during the year of four of the Managers.

Mr. George C. Clark died at Aiken, South Carolina, on February 24, 1919. Mr. Clark has been a member of the Board since 1899, and at the time of his death was Chairman of the Pension Board and also a member of the Finance Committee.

On March 9, 1919, Commodore Frederick G. Bourne died suddenly at Oakdale, Long Island, New York. Mr. Bourne was a member of the Board of Managers, Class of 1922, and had been a member of the Society since 1904.

Mr. Andrew Carnegie died on August 11, 1919. Mr. Carnegie had been a member since the organization of the Society, and it is to his generosity that the Society owes its Pension Fund. In May, 1914, Mr. Carnegie's gift of \$100,000 made possible the establishment by the Society of the Carnegie Pension Fund, which has been of the utmost value to the employees of the Society.

Mr. Henry Morgan Tilford, member of the Class of 1921, passed away on December 3, 1919. Mr. Tilford was a Patron and was deeply interested in many of the activities of the Society.

The resolutions passed in connection with these deaths appear at the end of this report.

Mr. George C. Clark, Jr., was elected to fill the vacancy in the Class of 1922 caused by the death of his father, the late George C. Clark.

Mr. W. Redmond Cross was elected to fill the vacancy in the Class of 1922 caused by the death of the late Frederick G. Bourne.

Hon. George D. Pratt was elected to fill the vacancy in the Class of 1921 caused by the death of the late Andrew Carnegie.

Gen. T. Coleman du Pont was elected to fill the vacancy in the Class of 1921 caused by the death of the late Henry Morgan Tilford.

MEMBERSHIP.

During the autumn of 1919 a systematic and successful effort was made to obtain new members by sending out 11,000 circulars.

The total enrolled membership of the Society, as of December 31, 1919, is as follows:

Benefactors	6
Founders in Perpetuity.....	17
Founders	14
Associate Founders	9
Patrons	31
Life Members	319
Annual Members	1,924
Fellows	36
Honorary Members	7
Corresponding Members	8
Ladies' Auxiliary	35
	<hr/>
Total	2,406

After deducting the resignations and deaths, the net result of the year is a gain of 120 members over the year 1918.

ATTENDANCE.

The restoration of normal conditions after the war and the increased population of the city have affected the attendance at the Zoological Park to a surprising degree, but the check on immigration and the lack of shipping facilities have prevented the Aquarium from entirely regaining its ante-bellum status. The

actual attendance figures for 1919, as compared with those of 1918, are as follows:

	Zoological Park	Aquarium
1919	2,035,859	1,850,575
1918	1,770,437	1,450,609

This makes a joint attendance at the two institutions of nearly four millions at a cost to the city of but a trifle over seven cents for each person.

COLLECTIONS AT THE PARK.

The census of the animals in the Zoological Park, compiled January 1, 1920, compared with the census of January 1, 1919, is as follows:

	January 1, 1919		January 1, 1920	
	<i>Species</i>	<i>Specimens</i>	<i>Species</i>	<i>Specimens</i>
Mammals	167	567	173	591
Birds	736	2,406	726	2,339
Reptiles and Amphibians ..	95	477	81	501
	998	3,450	980	3,431

During the year 1919 some valuable specimens were lost. The most important were as follows:

Mammals: The African elephant, Sultana, young pigmy hippopotamus (two days old), blesbok, orang, jaguar, Tasmanian wolf, springbok, black alpaca, sitatunga, Rocky Mountain goat, three sea-lions and three kangaroos.

Birds: Harpy eagle, two South African ostriches, whistling swan, North African ostrich, four eagles, three snowy egrets, two European buzzards, white ibis, black ibis and a demoiselle crane.

The collections at the Park were increased by the acquisition of the following specimens:

Mammals: Jaguar, two polar bear cubs, two yaguarundi cats, woolly monkey, four capybaras, one drill and a golden baboon.

Birds: Six ostriches, jabiru, curassow, sandhill crane, three toucans and a pair of spoonbills.

Because of the threatened danger of infection through imported cattle suffering from disease, the Federal Board of Animal Industry has forbidden the entry of hoofed animals from a large portion of the world, and this, together with the disturbed condition of the animal trade, very few importations were possible.

The Society has acquired and stored in the Zoological Gardens, Pretoria, South Africa, a large collection of animals, that is now awaiting transportation. This collection includes, sable antelope, giraffe, gemsbok, eland, lechwe, blue wildebeest, kudu, mountain zebra, blesbok, springbok, duiker, klipspringer and *Chaema* baboons.

At Sydney, Australia, another large collection of Australian mammals, birds and reptiles is awaiting shipment to the Zoological Park. This shipment will add many new and rare species to the Park exhibits.

A portion of this collection must go to other gardens, but some of the most important animals will be on exhibition here during the year 1920.

COLLECTIONS AT THE AQUARIUM

A census of the exhibits at the Aquarium taken January 1, 1920, shows the following results:

	January 1, 1919		January 1, 1920	
	<i>Species</i>	<i>Specimens</i>	<i>Species</i>	<i>Specimens</i>
Fishes	113	2,628	120	2,704
Reptiles	15	96	23	131
Amphibians	9	105	8	60
Invertebrates . .	17	1,094	15	1,157
Mammals	2	2	2	3
	<hr/>	<hr/>	<hr/>	<hr/>
	156	3,925	168	4,055

The difficulties of railroad transportation during the past year have been almost insurmountable, and the Society has been unable to take advantage of the many opportunities to replenish its collections.

An expedition, personally conducted by Dr. Townsend for the capture of garfish in Louisiana, encountered upon the return

a severe blizzard in New York Harbor. Dr. Townsend actually caught and shipped alive to within a few miles of the Aquarium, forty-two live gars; many of them of large size. If they could have been landed on the night of their arrival the entire collection would have been saved. The ship, however, grounded on a mud flat, the temperature dropped below freezing, the steam heat pipes broke and the entire collection was frozen to death before morning. The collection was the gift of Mr. Henry D. Whiton of New York.

The attempt to secure another collection of these gars, one of the most interesting fishes in North America, will be renewed during the coming spring, as soon as weather conditions are more favorable.

The collecting boat also will be ready for work in the early spring and will be employed to maintain a full supply of exhibition fishes, and also to reduce the cost of maintenance by bringing in a continuous supply of sea food for feeding purposes.

ALTERATIONS AT THE AQUARIUM.

The condition of the Aquarium building became absolutely intolerable during the year and it was evident that little or no help could reasonably be expected from the city, so the Society voted \$40,000 to move the engines and boilers to a point outside of the present structure and on the edge of the sea wall. This not only will place the engines above the reach of the tidal waters, but will give an adequate bunker space for coal storage.

The shortage of space for the storage of coal on several occasions during blizzards has placed the Aquarium dangerously near to disaster, and only the foresight of the Director and the energy of his staff have prevented very severe losses in the collections. With adequate bunkers and with the engines properly housed, the space freed within the Aquarium building can be devoted to new exhibition tanks and thereby greatly add to the attractiveness of the institution.

It is hoped that the city in considering the erection of a war memorial in the form of a water-gate can be brought to the realization of the possibilities of an enlarged Aquarium in connection with such a memorial sea-gate.

MAINTENANCE.

Park.—The sum of \$190,000 was provided by the Society for the maintenance of the Park during 1918. This represented a reduction of \$17,586 over the amount supplied the year before in spite of the great increase in supplies and in labor. The resulting situation was a very serious one, perhaps the worst encountered since the organization of the Society. In order to save the institution, the Managers raised a large fund to make up the deficit in the maintenance of the Park and of the Aquarium.

Aquarium.—The case at the Aquarium was similar. The sum of \$45,000 was appropriated for maintenance against that of \$48,632.50 of the year before. The force was reduced and the work increased. Though great economy was practiced, the Society actually was obliged to contribute during 1919 for the maintenance of these two institutions the sum of \$17,572.07, although in both cases the contract with the city provided for adequate maintenance.

The subscriptions to cover the deficit of the 1919 maintenance were as follows:

Archer M. Huntington.....	\$2,000.00
George F. Baker.....	1,000.00
Andrew Carnegie	1,000.00
Edward S. Harkness.....	1,000.00
A. Barton Hepburn.....	1,000.00
Mortimer L. Schiff.....	1,000.00
Percy A. Rockefeller.....	1,000.00
E. C. Converse.....	1,000.00
Cleveland H. Dodge.....	1,000.00
Emerson McMillin	1,000.00
Wm. Pierson Hamilton.....	1,000.00
George J. Gould.....	1,000.00
Ogden Mills	1,000.00
Percy R. Pyne.....	1,000.00
Henry M. Tilford.....	500.00
Dr. L. R. Morris.....	500.00
Edwin Thorne	500.00
Lispenard Stewart	500.00
George C. Clark.....	250.00
William Woodward	200.00
	<hr/>
	\$17,450.00

The Executive Committee wish to take this opportunity to express their appreciation to those gentlemen for their generous contribution. With these subscriptions the deficit was wiped out with the exception of the sum of \$122.07 which was paid from the Income Account.

In spite of these donations, the Park and Aquarium could not have been maintained, except through the utmost economy on the part of the Directors and their respective staffs.

All of these facts were brought to the attention of the Board of Estimate and Apportionment, and for 1920 the Society has been awarded for the Park, the sum of \$237,930.97, and for the Aquarium, the sum of \$54,891. These are both very substantial increases and in spite of the greatly increased cost of supplies and labor probably would have proved adequate if they had been turned over to the Society in a lump sum as heretofore. This Maintenance Fund has, however, been apportioned in accordance with a rigid schedule, which will make it exceedingly difficult to get through the year without a deficit.

The Society already has been obliged to vote the sum of \$2,500 to make up the salaries of the high officials of the Park, which were reduced for some unaccountable reason at the last moment. In spite of these drawbacks, the Executive Committee do not expect to be obliged to call upon the Board of Managers for help for maintenance for the coming year.

CORPORATE STOCK.

During the year corporate stock to the amount of \$5,000 was supplied by the city for the following purposes:

Improvements along Bronx River.

FINANCES.

Sage Bequest.—Nothing was received in 1919 from the Estate of Mrs. Russell Sage, but it is expected that a portion of the bequest will become available during the spring of 1920.

The following were the balances to the credit of the various accounts on January 1, 1920:

Income Account		\$945.89	
Endowment Fund (Cash uninvested)		26,941.21	
Animal Fund		39,604.39	
Special Trust Fund:			
Cadwalader Animal Fund.....	\$945.53		
Stokes Bird Fund.....	658.54		1,604.07
			<hr/>
Improvement and Repair Fund.....			12,880.86
Special Funds:			
Publication Fund	\$1,707.28		
Tropical Research Fund.....	153.65		
Art Gallery Fund.....	7,221.68		
Heads and Horns Building Fund....	4,215.23		
Library Fund	67.41		
Wild Life Fund.....	981.31		
National Collection Heads and Horns	68.89		14,415.45
			<hr/>
Total			\$96,391.87

INCOME ACCOUNT.

At the close of the year the balance on hand was \$945.89.

This always has been the most overburdened fund of the Society. Until we have an Endowment Fund of at least two million dollars this account will be insufficient to meet the current expenses.

Nearly all other funds are so limited that deficits in them must be charged against this account. Even the Pension Fund has been of little help to the Society so far, since the Society is obliged to supply the sum of \$3,665 annually from the Income Account as its contribution toward pensions.

ANIMAL FUND.

The amount to the credit of the Animal Fund at the end of the year 1919 amounted to \$39,604.39. This accumulation is due to the fact that few animals were available during the year. The Society now has on hand a sufficient amount to pay for animals

now awaiting shipment that are urgently needed to replenish the collections.

The Society donated a collection of animals consisting of 151 species and 329 specimens to the Antwerp Zoological Gardens. The Zoological Society of Antwerp showed their appreciation by presenting the Society, through its President and the Director of the Park, engraved resolutions of thanks and awarding them "Cross of a Commander of the Order of the Belgian Crown."

The cost of transporting these collections, amounting to \$1,829.47, was charged against the Cadwalader Animal Fund.

CADWALADER ANIMAL FUND.

The balance on hand at the end of the year amounted to \$945.53. The only important charge against this account was the cost of the transporting the Society's gift to the Antwerp Zoological Gardens.

STOKES BIRD FUND.

The balance at the end of the year amounted to \$658.54. This fund was established for the protection of wild life in North America and no expenditures were made from it during the year.

ENDOWMENT FUND.

During the year, the Endowment Fund slowly increased from \$370,701.25 to a total of \$398,632.46, inclusive of securities and cash uninvested. After an existence of a quarter of a century and with an attendance larger than that of any scientific society in the world, to have an Endowment Fund of less than \$400,000 is discouraging.

Your Committee are unable to understand why the Society should be repeatedly omitted in the wills of rich men who apparently search far and wide for objects for their benevolence. If the Society had an Endowment Fund in any degree on a parity with similar funds in sister institutions, the educational and scientific work of the Society could be multiplied many times.



EUROPEAN RED DEER
From a photograph by Elwin R. Sanborn.

Until we have an Endowment Fund of several millions of dollars, we shall be compelled to pass or neglect scientific opportunities that would yield great results.

Even with the income when received from the Sage bequest, princely as that gift was, the Society will be little more than able to pay its way on the present basis, without embarking upon any new undertaking.

ART GALLERY FUND.

The following new picture was purchased during the year :

Rocky Mountain Goat, by Carl Rungius.

Mr. Rungius is now engaged in the preparation of a picture of the American Wapiti.

There is now on hand a balance of \$7,221.68 in this fund.

TROPICAL RESEARCH FUND.

The Tropical Research Station at Georgetown, British Guiana, was reopened and a description of the season's work appears elsewhere in this report.

The scientific results for the year were exceptionally brilliant, and the station will be reopened in the spring of 1920, and Mr. Beebe will sail for British Guiana in April.

Subscriptions to the Tropical Research Fund for 1920 are as follows:

Anthony R. Kuser.....	\$1,000.00
George J. Gould.....	1,000.00
Mortimer L. Schiff.....	1,000.00
E. C. Converse.....	1,000.00
A. Barton Hepburn.....	1,000.00
Edward S. Harkness.....	1,000.00
Cleveland H. Dodge.....	500.00
C. Ledyard Blair.....	500.00
	<hr/>
Total	\$7,000.00

Mr. Beebe is now engaged in the final revision of the text of the last three volumes of "A Monograph of the Pheasants."

The sales of the first volume thus far have been 138 copies in America up to January 1, 1920. A list of the American subscribers to the "Monograph" is published on page 121 of this Report.

It is hoped to publish Vol. II at the end of 1920 and the two remaining volumes will be published during 1921.

The delay in the appearance of these volumes has been occasioned by the fact that the plates were being manufactured in Austria when the war broke out, and it has only been recently possible to have them shipped in safety to London.

NATIONAL COLLECTION OF HEADS AND HORNS.

There have been few acquisitions to the Head and Horns collection, but during the year we have acquired by gift and purchase the following specimens:

Gifts

William Hoey: Black-tailed Deer; Head.

W. Redmond Cross: Rocky Mountain Goat; two Heads.

Carl Rungius: Fannin's Mountain Sheep; Head.

Mrs. Casimir deRham: Trophies, late Casimir deRham; Two Antelope heads, two Elk heads, Mountain Sheep head and one Bear head.

Townsend Lawrence: European Red Deer; antlers.

Purchase

By purchase the Society acquired a pair of Philippine Water Buffalo horns, and two heads of Prong-horned Antelope. The head of the Hangul deer, from a specimen that was presented to the Society by the Duke of Bedford and died after living in the Zoological Park, was mounted for exhibition.

HEADS AND HORNS MUSEUM.

The Executive Committee have determined to commence at once the construction of the Heads and Horns Museum. All subscriptions with one exception have been paid, and the entire amount has been invested in Liberty Bonds. There is also a

small cash balance on hand. An additional \$10,000 have been guaranteed by the individual members of the Executive Committee, making available a total building fund of \$104,000.

The Committee have requested Mr. Henry D. Whitfield to prepare detailed plans and specifications for the building, with a view of awarding the contract in the spring of 1920.

An additional \$40,000 will be required and the Committee desire to obtain four subscriptions of \$10,000 each to this fund.

WILD LIFE PROTECTION.

Perhaps the most important matter under this heading during the year was the fight at Albany to prevent the enactment of the law permitting the killing of female deer. The conservative sportsmen in the Adirondacks and elsewhere were behind this opposition, but in spite of them the so-called buck law was repealed.

The measure, however, will undoubtedly be again enacted into law during the coming season because up to date eleven men have been killed in the Adirondacks by mistake, while the slaughter of does has been excessive.

There has been no demand during the year on the Society's fund for Wild Life Protection as all work of this nature was financed by the Permanent Wild Life Protection Fund.

The balance on hand January 1, 1920, was \$981.31.

PUBLICATION FUND.

The balance on hand on January 1, 1920, was \$1,707.28. A new catalogue of the Aquarium, which is now in course of preparation should be ready in the immediate future.

It virtually is a guide book. The publication has been financed by the Aquarium Fund with the exception of \$1,000 advanced by the Society. The price will be forty cents per copy. This catalogue would have been on sale if it had not been delayed by the printer's strike.



BACTRIAN CAMEL BORN IN THE PARK

The young camel has been named Sophia Smith after the Founder of Smith College.
From a photograph by Elwin R. Sanborn.

LIBRARY FUND.

The Library Fund is supported by Transfers from the General Income Account of the Society. During the year no transfers were made, and the balance of \$67.41 on hand January 1, 1920.

As has been stated previously by this Committee, it is the intention to have the Zoological Library specialize in works on conservation.

Mr. John J. Paul of Watertown, Florida, presented to the Library a valuable collection of scientific works, including Gould's *Monograph of the Hummingbirds of the World* in six volumes, and many other volumes relating to early North American zoology and exploration.

IMPROVEMENT AND REPAIRS.

Very little work from this fund has been done during the year, except the erection of a permanent cage of hexagonal form back of the Aquatic-Bird House, for red-winged blackbirds.

CARNEGIE PENSION FUND.

A formal application was made to the Carnegie Foundation for the sum of \$150,000 for the Carnegie Pension Fund in order that the Society might be relieved of the present drain upon its resources. The Society is obliged to contribute annually from its General Income Account the sum of \$3,665.

The Society's request, however, appears to have received but scant consideration and there is little hope of relief from this quarter.

MEDICAL DEPARTMENT.

The Medical Research Department under Dr. George S. Huntington has made remarkable scientific use of the rough material turned over from our collection. Many skeletons and skins also have been furnished to the American Museum of Natural History.

Some of the most important results obtained from the Prosecutor's office are set forth in Dr. Huntington's report.

CONSERVATION.

The Chairman of the Executive Committee, Mr. Grant, spent the summer on the western coast organizing the "Save the Redwoods League," which has for its purpose, the preservation of the giant Redwoods from destruction.

This campaign has proved most successful and the details were set forth in the September BULLETIN of the Society. Seven thousand five hundred copies of this BULLETIN were printed for distribution and have been sent to all members of Congress, and the Legislatures of various West Coast states.

The BULLETIN has proved of great service in arousing public interest and is to be regarded as the Society's contribution toward the preservation of our forests. The results obtained from the relatively small expenditure involved show what easily could be done elsewhere if the Society were financially strong. The nation-wide character of the Society is becoming recognized and will become more and more conspicuous in the future. As soon as we are in a position to take up scientific work on a large scale the Society will acquire not only national but an international status.

BRONX PARKWAY COMMISSION.

Great progress was made during the year in this important work, and with the full support and assistance of the city the Commission is prepared to push toward an early completion of the driveway. The river itself is now safe from pollution.

RECEPTIONS.

Annual Dinner.—The Eleventh Annual Dinner was given through the courtesy of Mr. Watson B. Dickerman at the Metropolitan Club on December 26, 1919.

Reception at the Aquarium.—The Annual Reception to the members of the Society was held at the Aquarium on Monday evening, May 12, 1919. About 406 members and their guests attended this function, while the members of the Board of Managers and their wives acted as Reception Committee.

At the Zoological Park, Ladies' and Members' Day was observed on May 22, 1919. It was preceded by the Spring Meeting of the Board at the Administration Building.

MEMORANDUM OF MEETINGS, 1920.

Annual Meetings of the Society:

JANUARY 13, 1920, 8:30 P. M.

Hotel Waldorf-Astoria.

Meetings, Board of Managers

January 20, 1920, 3:00 P. M.	May 20, 1920, 2:30 P. M.
Annual Meeting, Down Town Association.	Park Meeting, Preceded by Luncheon at 1:30 P. M.

OCTOBER 18, 1920, 4:00 P. M.

Aquarium Meeting.

Annual Dinner,
December 26, 1920.

Meetings, Executive Committee:

January 8,	May 13,
February 19,	June 10,
March 11,	October 14,
April 8,	November 11,
	December 9.

Members' Reception at Aquarium:

May 10, 1920, 8:30 P. M.

Members' Day and Ladies' Day at the Zoological Park:

May 20, 1920, 3:00 P. M.

AUDITING.

The Auditors of the Society, Messrs. Marwick, Mitchell, Peat & Company, have audited and found correct the accounts of the Society, including the system of receiving and paying for supplies at the Park and at the Aquarium.

The Auditors' report, as well as that of the Auditing Committee, follows the report of the Treasurer on page 178.

ACKNOWLEDGMENTS.

The Directors of the Park and Aquarium and their respective staffs have done everything possible to facilitate the work in their respective institutions and to maintain them at a high standard of efficiency, in spite of the discouragements of the year. The Committee desire to acknowledge their zeal and faithfulness.

Respectfully submitted,

MADISON GRANT, *Chairman,*

PERCY R. PYNE,
WILLIAM WHITE NILES,
WM. PIERSON HAMILTON,
FRANK K. STURGIS,

LISPENARD STEWART,
WATSON B. DICKERMAN,
ANTHONY R. KUSER,
HENRY FAIRFIELD OSBORN,
Ex-Officio.

Extracts from the Minutes
of the
Executive Committee of the Board of Managers
of the
New York Zoological Society

Meeting of March 13, 1919

George Crawford Clark

Resolved, That the Executive Committee desire to make this minute of their deep regret for the loss of their associate, the late George Crawford Clark, on February 24, 1919, and to express their personal sense of bereavement at his death.

Further Resolved, That a copy of this resolution be sent to Mr. Clark's family.

Frederick Gilbert Bourne

Resolved, That the Executive Committee desire to make this minute of their deep regret for the loss of their associate, the late Frederick Gilbert Bourne, on March 9, 1919, and to express their personal sense of bereavement at his death.

Further Resolved, That a copy of this resolution be sent to Mr. Bourne's family.

Extracts from the Minutes
of the
Executive Committee of the Board of Managers
of the
New York Zoological Society

Meeting of October 2, 1919

Andrew Carnegie

Resolved, That the Executive Committee of the New York Zoological Society desires to express its deep regret for the death on August 11, 1919, of the late Andrew Carnegie, one of the Managers of the Society since its organization, and one of its most munificent benefactors. The Pension System of the New York Zoological Society has been of great assistance to a most worthy and efficient class of men and was founded by the generosity of Mr. Carnegie. The Society has never failed to meet with a prompt and lavish response from Mr. Carnegie in all its efforts to develop the New York Zoological Park and to promote its scientific work.

Further Resolved, That a copy of these resolutions be transmitted to the family of the late Andrew Carnegie.

Meeting of December 11, 1919

Henry Morgan Tilford

Resolved, That the Executive Committee desire to make this minute of their deep regret for the loss of their associate, the late Henry Morgan Tilford, on December 3, 1919, and to express their personal sense of bereavement.



MUTE SWANS OF THE BEAVER POND
From a photograph by Elwin R. Sanborn.

REPORT OF
THE LADIES' AUXILIARY
TO THE BOARD OF MANAGERS.

The year 1919 was marked by great industry in the Ladies' Auxiliary of the New York Zoological Society. The membership was increased, and much important work was accomplished. The activities of the Auxiliary that were greatly curtailed during the period of the war were resumed, and the unfinished tasks again are being prosecuted with vigor.

The winter lecture of 1919 was given by Ensign Donald B. MacMillan on February 17, at the house of Mrs. Vincent Astor, who kindly offered her residence for the purpose. The subject, "Animal Life and the Children of the Arctic," was a fascinating topic, illustrated by a number of remarkable pictures in color taken by Ensign MacMillan while with the Crocker Land Expedition. Mr. Madison Grant, Chairman of the New York Zoological Society, presided.

At the first business meeting of 1919, held on April 25, it was voted that the work of the Endowment Fund be again taken up, in the desire to complete the sum of \$5,000, which had been promised by the members of the Ladies' Auxiliary as their share of the General Endowment Fund for the Society. Of this \$5,000, the sum of \$2,700 already has been sent to the Treasurer of the Society, Mr. Percy R. Pyne.

At this same meeting, the date of the annual Garden Party was set for May 22, and the Garden Party Committee of the previous year was unanimously re-elected. This reception was the most successful and brilliant ever given by the Society. The Park in the fulness of its spring beauty, made a marvelous setting. The new Commissioner of Parks, Mr. Gallatin, and other distinguished guests, were present; and for the children there were special performances by the animals.

The fine music was also much enjoyed by the numberless guests. As a result of this entertainment, many new and enthusiastic members were obtained for the Society.

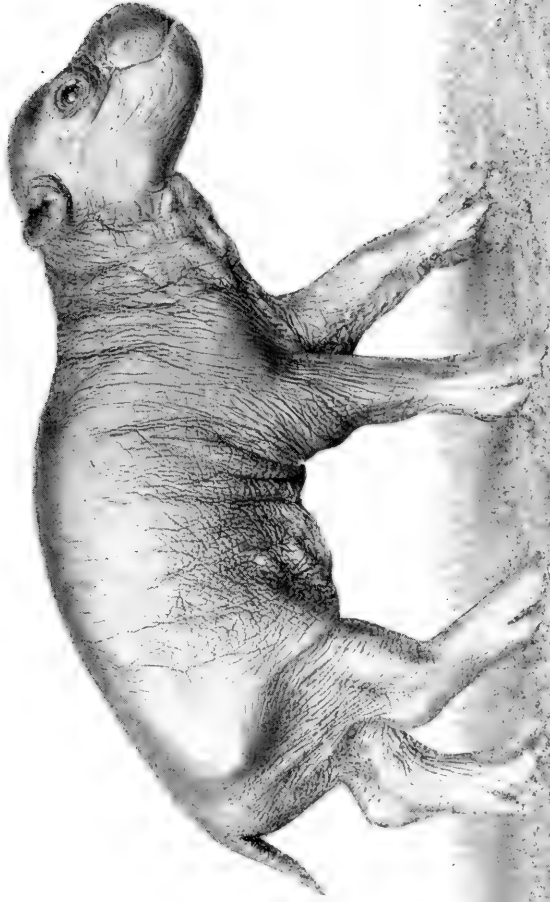
At the second business meeting of 1919, held on December 10, Miss Pauline Robinson, Chairman of the Ladies' Auxiliary Committee for Children's Excursions to Bronx Park, presented a report of the work for the entertainment of children. Twenty-three groups, comprising a total of 1,198 children, were taken to the Park from the public schools and playgrounds of the City for day's outings. These groups always went under the guidance of a play leader, free transportation and lunches were provided, and the parties were so much enjoyed that the children were constantly clamoring for more excursions. For most of them it was the only outing of the summer, and their only opportunity to enjoy the advantages offered in the way of education and diversion at the Zoological Park.

These parties were made possible through the generous donations of members of the Ladies' Auxiliary to the Fund of which Miss Robinson is Chairman.

The date for the winter lecture of 1920 was fixed for February 5 and was held at the residence of Mrs. Vanderbilt, 1 West 57th Street, where Mr. Beebe lectured on "Jungle Life and Its Opportunity for Scientific Imagination." Henry Fairfield Osborn, President of the Society, presided.

Respectfully submitted,

MRS. GEORGE F. BAKER, JR.,
Chairman.



PYGMY HIPPOPOTAMUS

The first specimen of this rare and interesting animal ever born in captivity.

REPORT OF THE
DIRECTOR OF THE ZOOLOGICAL PARK

TO THE BOARD OF MANAGERS

NOTWITHSTANDING a record breaking attendance of 2,035,859, the Director sincerely hopes that he never will have to pass through another year such as 1919. The grinding poverty of our working people was accentuated by a scale far lower than the pay given elsewhere in city institutions for similar services. This affected every one on the force, from the lowest to the highest. The losses of valuable long-service men, and the difficulty of securing new ones "just as good" at our starvation rates of pay, precipitated a continuous struggle to keep our force fairly intact, and keep the Park up to the mark.

Next came the loss by death of four long-time friends: Mr. Carnegie, Mrs. Sage, Mr. Clark and Mr. Bourne.

To those calamities we have to add the loss of some important large hoofed animals, the present impossibility of replacing any of them, and the total loss of a collection of South American animals of great variety that had been specially gathered for us,—lost because of no shipping facilities from the only port available.

Finally, the cut in our appropriation of \$32,000 and its baneful results, followed us through the year like a nightmare.

The bright spots on the year's record were the record throngs of appreciative visitors, the return of Major Dr. Blair from overseas, the visits of the King and Queen of Belgium, the giving of a large lot of living specimens to the Zoological Garden most in need of them, and the saving (by Keeper D'Osta) of the big chimpanzee Fanny when she was just the same as dead of pneumonia.

ATTENDANCE

The attendance of visitors was a source of profound satisfaction. Although we receive far less maintenance money than our rich sister institutions, our attendance balance sheet for the year goes so far beyond theirs that not one of them makes even a good second to the Zoological Park. In popular appreciation we lead all the institutions of Greater New York, except Coney Island in its best seasons.

The monthly record for the year is as follows:

	1919	1918
January	69,298	38,528
February	84,221	56,620
March	118,798	135,482
April	192,839	161,344
May	255,597	232,337
June	297,285	246,307
July	220,004	269,273
August	263,135	174,949
September	226,015	191,134
October	133,742	108,970
November	131,650	85,099
December	43,275	70,394
	2,035,859	1,770,437

MAINTENANCE

The year 1919 was a lean year. Our total appropriation of \$190,000 represented a cut of \$17,000 from the funds of the previous year, and a cut of \$32,000 from the budget that we submitted to the Board of Estimate as representing our minimum needs.

In asking for \$222,000 for 1919 we assumed that inasmuch as the People of New York, private and official, had elected to create the Zoological Park, they meant what they said when they promised in advance to "maintain it adequately."

But the open season in the fall of 1918 saw a great slaughter of appropriations. By a curious irony of treatment, we were cut

down to \$150,000 with a resounding crash in salaries of eighteen per cent. loss; and then, in response to a frantic appeal in behalf of our impoverished men, we were given back \$15,000, solely for the purpose of *increasing* the salaries of our force by that amount *over and above what those salaries were before they were reduced!*

It being utterly impossible to carry on during 1919 with only \$190,000, the Society addressed itself to the task of making up a shortage \$32,000, thus:

By passing the hat through the Board of Managers	\$18,000
By leaving positions vacant, and by dropping every employee who could possibly be spared	10,000
By stripping the Animal Fund.....	4,000
	<hr/>
Total	\$32,000

This unhappy program was carried out. There was nothing else to be done. We kept up to the mark all those portions of the Park that are most in the public eye, and by the rest of it we merely did the best we could.

In 1919 the end of the war enabled the city government to adjust institutional finances on a better basis. We asked for \$242,000, we received \$237,000, and the Society is making up the difference.

Our employees whose salaries are under \$1,200 per year receive for 1920 the universal horizontal increase of twenty per cent., and those getting from \$1,200 to \$1,900 receive fifteen per cent. more, and all those (all except the Director) above \$1,900 receive ten per cent. more. But even this left our officers and Chief Clerk so poorly paid that from its own funds the Society must provide for an additional ten per cent. increase, to give them two-thirds of the salaries paid to curators in the similar institutions.

As usual, the repairs made to the Park buildings, walks and other improvements were paid for wholly out of moneys that belonged by right to the Animal Fund, and the same course must be pursued in 1920.

THE GIFT TO BELGIUM

In 1916, when the war was pressing upon the Belgian people with the utmost severity, the Zoological Society resolved to send to the Societe Royale de Zoologie of Antwerp, a large gift of mammals, birds and reptiles to assist in the reconstruction of the Antwerp Zoological Gardens. A communication was despatched to the Antwerp Society declaring this intention, and promising that as soon as the enemies of Belgium were out of that country, and the Gardens were ready to receive new collections, the gift would be forwarded.

In the summer of 1919 Dr. M. L'Hoest, Director of the Antwerp Gardens, advised us that the proposed gift might be forwarded forthwith. In furtherance of the plan, the officers of the Royal Zoological Society of Antwerp secured from the owners of the Lloyd Royal Belgian Steamship Line the privilege of free transportation for the entire collection, and three keepers to care for them, over and back.

On the steamer *Eglantier*, which left New York on October 2, 1919, went forward the entire collection of 224 birds, 49 reptiles and 2 California sea lions which arrived from Santa Barbara in time to go directly on board. With this shipment went Bird Keeper Louis Wahl. The New York agents of the ship, and the ship's officers, did literally everything in their power to render the enterprise both successful and agreeable; and the same must be said of the officers of the steamer *Indier* that carried the mammals, later on.

With only three losses among the birds the *Indier* reached Antwerp on October 19, and the shipment was promptly taken in hand by Dr. L'Hoest and the Antwerp Society.

It was arranged in New York that the mammals should go forward on the steamer *Indier*, that was booked to sail on October 3. But the longshoremen's strike intervened, and for three weeks or more the *Indier* lay comfortably at her dock at 41st Street, unable to receive any cargo.

This exasperating delay eventually led to an entire change in the plans for the cargo of the ship, and in order to get away it was decided to load with grain, off the Jersey shore at Hoboken. With that decision the *Indier* quickly left her home berth, and went to Hoboken.

And then began our final act. All the crates for our mammal gift had long been in readiness, and Mr. Ditmars and the keepers had worked out their plans for crating, down to the smallest details. Forthwith the catching and crating began.

In making up the list of gifts, the Director kept constantly in mind the necessity to send a zoologically representative collection, that would cover the greatest possible number of orders, families and important genera. Of the larger mammals it was deemed best to send single adult male specimens rather than pairs with a view to the possibilities of breeding. This view was, later on, cordially approved by Director L'Hoest.

In pursuance of this principle we shipped a fine adult bull American bison, an adult bull elk, and other male hoofed animals of large size.

The task of crating was wonderfully successful. It began on October 30, and was finished early in the morning of the 31st, without injury to anything. By noon of the 31st everything was on board our lighter at the foot of 134th Street. Curator Ditmars made moving picture records of the principal events, and at the last annual meeting of our Society they formed a feature of unusual interest.

The business of getting ten truck-loads of animals and food on board the ship was a very difficult matter. On the whole, and due to circumstances wholly beyond the control of the ship's officers and our own men, the task was the most difficult and exhausting of any one undertaking ever carried through by our force. This was due to the rush in loading the ship with grain from half a dozen floating elevators while our own cargo was struggling to get on. Our force of ten men began work at the ship, from our own chartered lighter, at 5 P.M., and by the time it was finished, just before midnight, they were more dead than alive. This work was accomplished by a mixed force of Park laborers under Mr. Merkel and of keepers under Mr. Ditmars.

With this shipment went Keepers Walter Thuman and John Reilly, whose services throughout were admirable. The ship lay off Staten Island for nearly a week, and while there the Mongolian wild horse, which from the first had kicked and fought against confinement in her crate, managed to break her neck.

This was the only serious casualty in the collection. The loss later on of two common red foxes was negligible.

This ponderous shipment, of ten truck loads of animals and five loads of food, occupied the forecastle house and a deck house twenty-four by forty feet constructed by contract for the Society at a cost of nearly \$500.

After a short and very satisfactory voyage, the *Indier* reached Antwerp on November 23, and our keepers rendered good assistance in disembarking and in getting the animals well settled in their new quarters. Enough food was sent over to give all the animals a good start.

In expressing its thanks for and appreciation of the gift, the Societe Royale de Zoologie surpassed all the existing records of such matters of which we know.

To the President of the New York Zoological Society, and to the Director of the Park, separately, for their respective parts in the matter, were sent highly artistic and beautifully illuminated parchment memorials, printed in type over 350 years old, and signed by each member of the Board of Directors of the Antwerp Society. The medals of honor of the Society were bestowed upon each of the two officers named above, and both were elected Honorary Members of the Antwerp Society.

Altogether, the gift to Antwerp toward the restoration of her beautiful Zoological Garden was carried through with complete success and satisfaction. The New York Zoological Society has done more than to offer mere words of sympathy over the devastations of war, and has gone farther than to say in empty words, "Be ye warmed and fed." It has been worth while for science to show that its sympathy is susceptible of practical demonstration.

The food sent with the shipment of mammals was as follows:

Sixty-eight bales of clover and timothy hay; 1,000 quarts of crushed oats; 250 loaves of bread; 200 bananas; 75 cabbages; 50 quarts of bran; 1 box of oranges; 1 crate of eggs; sundry bags of carrots, potatoes and beets; 500 pounds of fresh meat and 225 pounds of fresh fish.

The Antwerp collection was composed as follows:

	Species	Specimens
Mammals	33	56
Birds	105	224
Reptiles and Amphibians.....	13	49
	<hr/>	<hr/>
Total	151	329

The full list of mammals was as follows:

1 Chimpanzee	1 Virginia Opossum
1 Golden Baboon	2 Ring-tailed Wallabys (pair)
2 Rhesus Monkeys	2 Island Kangaroos
2 White-throated Sapajous	1 Woodward Kangaroo
2 Green Monkeys	1 American Bison
2 Hybrid (Russian Brown) Hairy-eared Bears	1 Yak
2 Black Bears	1 Male Barasingha Deer
2 Gray Wolves (pair)	2 White-tailed Deer (pair)
2 Coyotes (pair)	2 Hog Deer (pair)
2 Red Foxes	2 Axis Deer (pair)
2 Raccoons	1 Male American Wapiti
1 Red Coati Mundi	2 Barbary Wild Sheep (pair)
1 Jaguar	2 Himalayan Tahr (pair)
2 Beavers	1 Male Nylghai
6 Prairie Dogs	1 Male Grant Zebra
1 Canadian Porcupine	1 Male Mongolian Wild Horse
	2 Sea Lions

Total, 33 species; 56 specimens.

DEPARTMENT OF MAMMALS

W. T. HORNADAY, Curator; R. L. DITMARS, Assistant Curator;
JOHN TOOMEY, Head Keeper.

In view of the severe handicaps from which this department has suffered, the majority of the mammal collections have held up remarkably well. In spite of all drawbacks, the collection of apes, baboons and monkeys is up to its highest standard, the bears are as fine and as numerous as ever, the loss of two species in the Zebra House is not very noticeable, and the deer have completely

held their own. The Small Mammal House has suffered severely, the Elephant House has had, during the last four years, three serious losses, and the Antelope House collection has badly fallen off.

On the other hand, the Lion House is close up to high-water mark, and the kangaroos and hoofed stock in the Small Deer House seem at their best.

It is no exaggeration to say that the animals sent to Belgium are not missed. Some of them were specially purchased for that gift, and others were duplicates that could be spared.

Our greatest loss during 1919 was Sultana, the female African elephant from the Blue Nile. Although originally as large as the male, Kartoum, the rapid growth of her mate soon left her far behind in size. Her troubles began with an awkward and unnecessary fall that she managed to have on the sloping runway leading from her cage to her yard. In that seemingly trifling accident she broke two ribs, and also broke off the external condyle of her right femur, a really preposterous accident for an elephant.

That break resulted in a long and painful lameness in that hind leg, during which the animal threw so much weight on the left leg that the left foot became inflamed, and suppurated to a very serious extent. Finally, Sultana came down, never to rise again. A great effort was made to raise her and support her, but she was too weak and helpless. Her troubles were ended by a rifle bullet through her brain.

Other serious losses by death were Toto, the orang-utan, a sitatunga, a Mongolian horse, a springbuck, two sea lions, and a number of kangaroos and deer of several species.

The persistent and quick fatalities among the small mammals purchased of dealers were quite exasperating and at times unaccountable.

The accessions during the year were few and unimportant. The most noteworthy was the birth of the pygmy hippopotamus.

The health of the mammals as a whole throughout the year has been excellent. There were no epidemics, and an almost irreducible minimum of tuberculosis.

The Park is waiting with eager interest the arrival next spring of a fine lot of animals that has been assembled and maintained at Pretoria, in the National Zoological Garden of South Africa, by Mr. A. K. Haagner, the Director. When that collection arrives it will fill several gaps in our Antelope House.

Following is a list of the more important gifts received during 1919:

RECEIVED BY GIFT IN 1919

Four Green Monkeys; 1 Moustache Monkey; 2 Spot-Nosed Monkeys; 1 Sooty Mangabey; 1 White-faced Sapajou; 1 Squirrel Monkey; 1 Cotton-headed Marmoset; 1 Crab-eating Raccoon; 2 White-nosed Coati Mundis; 1 Red Coati mundi; 4 Raccoons; 1 Red Fox; 1 Weasel; 1 Anticosta Island Black Bear; 1 Virginia Deer; 1 Muntjac; 2 American Bison; 1 Black Woodchuck; 1 Albino Gray Squirrel; 1 Golden Agouti; 2 Black Ground Squirrels; 1 Mexican Variable Squirrel; 1 Murine Opossum and 6 young; 1 Sea Lion.

Following are the more important purchases during 1919:

ANIMALS PURCHASED

Three Bonneted Macaques; 1 Javan Macaque; 5 Hussar Monkeys; 4 Green Monkeys; 1 Diana Monkey; 1 Vervet Monkey; 1 Mona Monkey; 2 Sooty Mangabey; 1 Red-headed Mangabey; 1 Japanese Red-faced Monkey; 4 Rhesus Monkeys; 7 White-faced sapajous; 1 Hooded Sapajou; 6 Black Spider Monkeys; 1 Gefroy's Spider Monkey; 1 Owl Monkey; 1 Woolly Monkey; 1 Saki Monkey; 7 Cotton-headed Marmosets; 1 Black Tamarin; 2 Dog-faced Baboons; 1 Golden Baboon and 1 Drill; 2 Red Coatis; 1 White-nosed Coati Mundi; 3 Cacomistles; 1 Grizzly Bear (cub); 3 Kinkajous; 2 Ocelots; 1 Jaguar; 2 Yaguarundi Cats; 2 Badgers; 1 Indian Mongoose; 1 European Red Fox; 2 American Gray Foxes; 2 Timber Wolves; 2 Rat-tailed Meerkats; 4 Bushy-tailed Meerkats; 3 Sea Lions; 1 Prevost's Squirrel; 1 Malabar Squirrel; 6 South American Red-bellied Squirrels; 3 Black Squirrels; 3 Fox Squirrels; 4 Capybaras; 5 Golden Agoutis; 1 Olive Agouti; 2 Canadian Porcupines; 2 South American Prehensile-tailed Porcupines and 2 South American Armadillos.

IMPORTANT BIRTHS DURING 1919

3 Hybrid Bears	1 Grant Zebra
3 Timber Wolves	1 Horse-tailed Deer
1 Mongoose Lemur	2 Barasingha Deer
3 Canadian Porcupines	2 Sika Deer
3 American Beaver	3 Red Deer
1 Pygmy Hippopotamus	3 Virginia Deer
8 Himalayan Tahr	1 Hog Deer
2 Mouflon	5 Fallow Deer
3 Aoudad	3 American Wapiti
1 Eland	2 Eld's Deer

CENSUS OF MAMMALS

DECEMBER 31, 1919.

	Species	Specimens
Marsupialia	11	32
Edentata	1	1
Carnivora	43	92
Pinnipedia	1	3
Rodentia	24	141
Primates	35	88
Artiodactyla (Even-toed Ungulates) ..	46	214
Perissodactyla (Odd-toed Ungulates) ..	10	17
Proboscidea	2	3
	173	591
Shipped to Belgium.....	33	56
	206	647

DEPARTMENT OF BIRDS

LEE S. CRANDALL, Curator; WILLIAM BEEBE, Honorary Curator;
SAMUEL STACEY, Head Keeper.

During the period of reconstruction which has followed the close of the war, importations of wild birds and animals have received scant attention. Ocean traffic, swamped with the pent-up business of four years, has left little space for non-essential shipments. That this condition will be remedied during 1920,

we have every reason to believe. The wild animal clearing stations of the world are well stocked with rarities which await only the opportunity to swell our collections.

During the latter part of 1919, a few shipments slipped through. Two of these were from India and brought us the first supply of Asiatic birds we have received since 1914. Included were Indian pittas (*Pitta brachyura*), blue-cheeked and green barbets (*Cyanops asiatica* and *Thereiceryx zeylanicus*), Indian golden orioles (*Oriolus kundoo*), golden-fronted green bulbuls (*Chloropsis aurifrons*) and a wonderful albinistic Indian ring-necked parrakeet (*Palaeornis torquata*), with plumage of pure and dazzling golden yellow.

From Para, in November, there came a long-expected shipment of Brazilian birds, imported by a local dealer. Among them were toco, Cuvier and sulphur-and-white-breasted toucans (*Rhamphastos toco*, *R. culminatus cuvieri* and *R. vitellinus*), the first arrivals in many years; the rare short-tailed parrots (*Graydidisculus brachyurus*); a pair of horned screamers (*Palamedea cornuta*); brilliant scarlet ibises (*Guara rubra*) and roseate spoonbills (*Ajaja ajaja*) and Brazilian hawk-headed parrots (*Deropterus accipitrinus fuscifrons*).

The Tropical Research Station sent us a number of birds, including a white-collared hawk (*Leucopternis melanops*), a great crested cacique (*Ostinops decumanus*), two gray-winged trumpeters (*Psophia crepitans*) and a very fine cock-of-the-rock (*Rupicola rupicola*), the second of the species we have exhibited.

Early in January we secured three immature specimens of the South American black-backed goose or comb duck (*Sarcidiornis sylvicola*). These birds are the first of the species we have had, and coming from Venezuela, establish a new northern limit of distribution.

About the first of the year, we received word from the ostrich farm at Bloomsburg, Pa., that it was in difficulties and wished to dispose of its birds at any price. The Curator left for Bloomsburg at once and selected a fine cock South African ostrich (*Struthio australis*) and five North African hens (*S. camelus*). All were unusually perfect specimens and were obtained at \$25 each, a fraction of their market value. Within two days crates were constructed and the birds packed. They reached



PIGEONS IN FLIGHT OVER THEIR AVAIRE

Curator Crandall has gathered an interesting collection of these birds.

From a photograph by Elwin R. Sanborn.

the Park safely and now form an interesting exhibit on Grant Walk.

In May, the Pigeon Section of the Signal Corps, U. S. A., deposited in the Park six homing pigeons, all of which had seen service in the trenches of France, one having been wounded in action. These birds attracted much attention on Members' Day and now are exhibited at the south end of the Pheasant Aviary.

One of the most important events of the year was the shipment of a collection of 224 birds of 106 species, as part of the Society's gift to the Zoological Gardens of Antwerp. Packed in more than sixty cases, the birds were placed on the S.S. *Eglantier* and left for Antwerp on October 1, in charge of Keeper Louis Wahl. The passage was slow and rough, but Antwerp was reached with very little loss. Keeper Wahl is entitled to great credit for his diligence and care.

The American Ornithologists' Union held its annual meeting at the American Museum of Natural History from November 11 to 13, and visited the Zoological Park on the 14th. The members of the Union were entertained at luncheon in the Administration Building where they received an address of welcome from Director Hornaday. After viewing the paintings of big-game animals and the Heads and Horns Collection, the buildings and installations of the Department of Birds proved the center of interest and the collections were thoroughly inspected.

During the year, the distribution of animals and birds which died in the Park was continued by the Curator. A total of 293 specimens were assigned to the institutions where they were most needed.

CENSUS OF BIRDS LIVING IN THE ZOOLOGICAL PARK.

January 1, 1920.

	<i>Species</i>	<i>Specimens</i>
Struthioniformes,	Ostriches	2 6
Casuariiformes,	Cassowaries and Emus	2 11
Tinamiformes,	Tinamous	3 4
Galliformes,	Quail, Pheasants, etc.	67 215
Turniciformes,	Hemipodes	1 1
Columbiformes,	Pigeons and Doves	58 158

Ralliformes,	Rails and Gallinules.	11	27
Sphenisciformes,	Penguins	1	1
Lariformes,	Gulls and Terns.	14	40
Charadriiformes,	Plovers and Sandpipers	5	9
Gruiformes,	Cranes, Seriemas, etc.	12	25
Ardeiformes,	Ibises, Storks and Herons	32	73
Palamedeiformes,	Screamers	3	4
Phoenicopteriformes,	Flamingoes	2	2
Anseriformes,	Swans, Geese and Ducks	58	464
Pelecaniformes,	Cormorants and Pelicans	10	14
Cathartidiformes,	New World Vultures.	7	12
Accipitriformes,	Hawks and Eagles; Old World Vultures.	18	25
Strigiformes,	Owls	8	25
Psittaciformes,	Parrots and Cockatoos.	85	151
Coraciiformes,	Kingfishers, Hornbills, etc.	3	5
Cuculiformes,	Cuckoos and Touracos.	3	5
Scansoriformes,	Barbets and Toucans.	11	15
Piciformes,	Woodpeckers	2	6
Passeriformes,	Thrushes, Sparrows and other perching birds.	308	1,041
		726	2,339

Summary: Orders, 25; Species, 726; Specimens, 2,339.

DEPARTMENT OF REPTILES

RAYMOND L. DITMARS, Curator; JOHN TOOMEY, Head Keeper.

Notwithstanding the handicaps of war, the collection of reptiles brought together during 1919 was the most imposing that ever has been exhibited during the history of the Park. The foundation of this fine exhibition was formed in the spring when the Curator of Reptiles, assisted by Head Keeper Charles E. Snyder, spent several weeks hunting specimens in the cypress swamps and hummocks of Jasper County, South Carolina. This work was made possible through the courtesy and the generous hospitality of the members of the Pineland Club, and most of the collecting was over the extensive and thoroughly wild reserva-

tion of the Club. The following specimens were captured and shipped to the Park:

Seven alligators; 4 gopher tortoises; 10 box tortoises; 39 mud turtles; 5 diamond-back rattlesnakes; 10 water moccasins; 2 copperhead snakes; 1 pine snake; 7 coachwhip snakes; 10 blacksnakes; 3 corn snakes; 11 chicken snakes; 4 ring-necked snakes; 1 scarlet snake; 1 mud snake; 4 sand "adders"; 12 hog-nosed snakes; 8 banded water snakes; 2 pilot water snakes; 1 red-bellied water snake; 1 green garter snake; 1 red garter snake; 11 king snakes; 1 blue-tailed lizard; 1 red-headed lizard; 2 race-runners; 10 fence swifts and 6 chameleons, a total of 175 specimens, representing 30 species.

A considerable part of the Curator's vacation period was spent in visiting mountain ledges in New York, Connecticut and Massachusetts, where "dens" of rattlesnakes had been located. This hunting resulted in the capture of a fine series of timber rattlers, which filled several cages.

Keeper George Palmer returned from a vacation trip in August with over a hundred harmless snakes, of eleven species. These specimens formed a splendid display in the lobby of the Reptile House, where they were provided with descriptive labels to set forth the reptiles of New York State.

Through considerable correspondence the Curator of Reptiles obtained a very rich series of turtles and tortoises, which formed an attractive display in the numerous yards of the turtle tank.

Among the more important gifts received during the year were the following:

Six alligators; 1 caiman; 1 matamata; 1 red-footed tortoise; 2 Muhlenberg's turtle; 1 Cuban turtle; 1 South American tegu; 1 African chameleon; 1 iguana; 8 Texas horned toads; 32 rattlesnakes; 3 copperhead snakes; 1 water moccasin; 1 red garter snake (exceptional variety); 60 Arizona water snakes; 1 gopher snake; 1 bull snake and 1 Boa constrictor.

Among the more important purchases during 1919 were the following:

Two iguanas; a series of small lizards from Arizona; 4 anandas; 7 Boa constrictors; 2 Central American boas; 10 Texas



COLUMBIAN BLACK-TAILED DEER

A Pacific Coast species that has prospered in the Park, despite the eccentricities of our climate.
From a photograph by Elwin R. Sanborn.

rattlesnakes; 20 copperhead snakes; 8 gopher snakes; 4 bull snakes; 6 coachwhip snakes; 6 king snakes; also various smaller lizards, snakes, turtles and tortoise from the eastern United States.

In British Guiana, at the Tropical Zoological Station, Director Beebe collected a number of interesting reptiles, amphibians and fishes in the vicinity of the station. Among these were a very handsome specimen of the ringed tree-boa, a Boa constrictor, an iguana and an armored cat-fish.

No large and costly specimens of the reptile collections were lost during the past year.

The following reptiles and amphibians were crated and shipped to Belgium, along with the mammals and birds presented by the Society to the Antwerp Zoological Gardens:

One 8-foot alligator; one 6-foot alligator; six 3-foot alligators; 1 Madagascan radiated tortoise; 6 painted turtles; 2 snapping turtles; 4 slider terrapins; 2 South American boas; 2 Texas rattlesnakes; 2 copperhead snakes; 2 blacksnakes; 6 garter snakes; 4 gopher snakes; 4 bull snakes and 6 bull frogs.

SUMMARY OF COLLECTIONS.

A census of the animals in the Zoological Park, taken January 1, 1920, is as follows:

	<i>Species</i>	<i>Specimens</i>
Mammals, at the Park.....	591	
Mammals given to Belgium.....	56	173
Birds, at the Park.....	2,339	
Birds given to Belgium.....	224	2,563
Reptiles and Amphibians, at the Park...	501	
Reptiles and Amphibians given to Belgium	49	550
	<hr/>	<hr/>
Total	980	3,760

REPORT OF THE VETERINARIAN

W. Reid Blair, D. V. S.

The health of the collections has been unusually good during the past year, and we have been fortunately free from any serious form of contagious disease. The losses during the year represent, in money and replacement value, the lowest in any single year since 1901.

During the coming year, when we may hope to receive a great increase in animals, to replace our losses of the past few years, we may reasonably expect a higher mortality than that of the past year. However, with our present hospital and quarantine facilities we are in much better condition to handle a larger number of new animals than ever before in our history.

Our greatest hopes in the control of the health of our collections must chiefly rest on our ability to prevent the introduction of disease from the outside by the detection of incipient diseases while the animals are still under quarantine control.

Rarely has a medical report been submitted in which considerable attention has not been devoted to the discussion of the more serious contagious diseases such as tuberculosis, distemper, actinomycosis and parasitic broncho-pneumonia. Mention is made of these diseases on this occasion in order to record the rarity of their occurrence or total absence from the collections during the past year.

Thorough and systematic routine disinfections is an important factor in controlling infectious and contagious diseases, and particularly in reducing the number of cases due to parasitic diseases such as intestinal worms.

In dealing with parasites such as certain filaria found in the lungs of elk, deer and buffalo, which require an intermediate host or bearer, it is important to remember that the existence and gravity of a parasitism often depends quite as much on the favorable conditions of the environment as on the presence of the parasite itself.

Parasitic diseases must always be reckoned as an important factor in the death rate of all zoological collections. The reason for this is perfectly apparent. Under natural conditions, a wild animal roams over considerable surface of ground and the infection it spreads is, therefore, widely scattered.

In a zoological park, this infective material, consisting of eggs and embryo of parasitic worms, is necessarily confined to a small or limited area; hence it will be seen that small ranges, corrals, and cages are naturally areas of concentrated infection. Therefore the mortality of wild animals and birds due to parasitic worms, especially those not requiring an intermediate host, will always be a constant factor in the death-rate of all large collections of wild animals.

Preventive medicine, through the systematic treatment of the animals by means of administering vermicides in the food at certain regular intervals, has been of the greatest benefit in keeping the animals comparatively free from those intestinal disorders so frequently produced by intestinal parasites, or by lowering their resistance to such an extent that they are more susceptible to some serious contagious or infectious disease to which they might be exposed.

Careful observations were made covering the period of the influenza epidemic during the past winter to learn if a similar affection could be recognized in any illness which might appear among our animals. If such an affection would occur, it was natural to expect its appearance among the Primates, on account of their closer relationship to the human species.

It will be of interest to report in this connection, that the health of this collection has never been so good as during the past winter, and no case of illness has occurred among the primates which simulated in the slightest degree the human affection recognized as influenza.

Our chief loss during the year was the female African elephant Sultana, which was destroyed after it was found she was unable to stand as a result of an obscure injury to the left hing leg, and other complications. Early in November Sultana was found one morning to be painfully lame in the left hind leg, and exhibiting an enormous swelling around and below the stifle joint. At the time, a fracture or dislocation of the patella bone was suspected, but owing to the enormous swelling about the joint manipulation of the part was difficult, and we were unable to detect any evidence of crepitation which would indicate fracture. While the swelling increased and involved the entire limb below the stifle joint, the lameness seemed to improve somewhat under the daily treatment of hot and cold water irrigations by means of a hose followed by the

application of stimulating liniments. Beyond the inability to use the leg the elephant gave no evidence of discomfort; the temperature was normal and the appetite unimpaired. Owing to the fact that the elephant could not use the leg she was reluctant to attempt to lie down at night, and as a result of the constant standing on the other hind leg and trying to save the injured one in moving about the stall, she dragged the well foot and wore away the pad and front nails so much that a form of necrosis developed, which was treated with difficulty. Finally, after several weeks, she did lie down, and after a few days of resting in this position, plans were made for raising and supporting her by means of a sling. This was done, but it was evident that she could not stand, and in order to end her suffering further, she was humanely destroyed by Dr. Hornaday with a single bullet.

After the leg had been carefully dissected it was found that the injury consisted of a compound fracture of the internal condyle of the femur, with displacement of the condyle. The displacement of the broken bone had prevented any repair of a bony nature taking place, although the attempted repair of the injury in the form of new formed fibrous tissue was enormous.

For a considerable number of years, owing principally to the high price of beef, we have been feeding about 50 per cent. of horse meat to the larger carnivorous animals such as lions, tigers, leopards and bears.

The horses fed to these animals are first carefully examined before killing in order to see that they shall be free from any contagious or infectious disease. The animals are all slaughtered in the Park abattoir, specially constructed for this purpose. Owing to the fact that this meat is fed in a raw state, and that carnivora are susceptible to glanders infection, extra care is necessary in examining the carcasses of animals slaughtered.

Since other similar institutions are now feeding horse meat or contemplate doing so, judging by the numerous inquiries addressed to us, a word of warning should be given concerning this disease.

As a precautionary measure, we condemn all horses offered for food that show any evidences of glanders, either on ante-mortem or postmortem examination. Occasionally an animal

that has been offered for sale at the Park for feeding purposes has been found affected with glanders, consequently it is important that all horses to be used for food, and especially when such meat is to be fed uncooked, should be carefully inspected. While the disease is principally confined to the horse, ass and donkey, it is, however, communicable to man and many other animals, except the bovine species, which seem to possess a natural immunity. In addition to the animals mentioned, glanders has been found in the camel, lion, tiger, leopard, wolf, bear, doy and guinea pig. The disease in the human assumes a very virulent form, so that great care should be taken by keepers and others, in order to avoid danger from infection, through the innocuation of wounds on their hands and arms, after handling an animal dying from glanders.

A few years ago I was consulted by the Dean of the Kansas City Veterinary College in reference to an acute disease affecting some lions belonging to an amusement company, located in Kansas City. As a result of the description of the symptoms of the affected animals, forwarded by the attending veterinarian, I made a tentative diagnosis of glanders, and this diagnosis was later confirmed by the Pathologists of the Bureau of Animal Industry, through the laboratory examinations of the tissues of the lions which had died. This outbreak had the following interesting history:—It appears that sixteen lions had been wintered a short distance from Kansas City, and had been fed exclusively on horse flesh. The horses purchased for the lions' food were old, wornout animals, no longer fit for work. Glanders among horses was prevalent in Kansas City during that winter. About the first of April these lions were taken from their winter quarters and shipped to a southern Kansas town and exhibited for a week at a street carnival. On the second day of the carnival, the keeper noticed one of the lions was dull and listless, and on closer inspection some bleeding from the nostrils was observed. The next morning this lion appeared to be much depressed, and a local veterinarian was consulted. On the fifth day the lion died, the autopsy showing necrotic areas in the mucous membranes of the nostrils and some catarrhal centers in the lungs; all other organs were apparently normal. No diagnosis was made.

Early in May, Drs. Moore and Kinsley of the Kansas City Veterinary College were consulted, and, on inspecting the lions, found one that had been ailing five days, and had refused food

for two days. The nictitating membrane protruded over the eye, the respiratory movements were very rapid, and accompanied by frequent bleeding from the nostrils; the discharge being bright red, but not frothy, indicating that the hemorrhages were from the nostrils or upper air passage rather than from the lungs. On the afternoon of the same day, this lion died. On the post-mortem examination, necrotic areas were found in the nasal mucous membranes, catarrhal centers in the right lung, and oedematous infiltration in the mesenteric and bronchial lymph glands. The other organs were normal. On the following day three other lions that had been in the same cage began to show symptoms, such as refusal of food, hurried respiration, and protruding nictitating membranes. The next day two of the lions bled from the nostrils, and three animals died within a few days, making a total of five deaths.

Several years ago I saw a case of glanders in a German sheepdog which had been infected from eating a portion of the diseased lung of a glandered horse. The dog died four days after the first symptoms were noticed. The lymphatic glands of the head and neck were suppurating; and the ulceration of the nasal cartilage was extensive. Other observers have reported tigers, bears and wolves with ulcerous lesions in the nose, and nodules in the lungs, liver, spleen and lymphatic glands, which proved on microscopic examination to be glanderous.

When a positive diagnosis of glanders is made in any animal, destruction should take place at once, and the entire carcass buried or burned.

The live-stock sanitary laws of all civilized countries include glanders among those diseases which must be officially reported, and provide also for regulations requiring the immediate destruction of all diseased, and the quarantine of exposed animals.

The cages in which glandered animals have been confined should be thoroughly disinfected; this applies particularly to the sleeping quarters of the animal.

Tuberculosis among equines is of such rare occurrence in my experience that a recent case, which has come under my observation in connection with the examination of horses slaughtered in our abattoir, I believe is worthy of mention.

During the winter an aged horse with a large bone spavin was presented to the Park for slaughter, which on account of lameness was useless to the owner. The animal's temperature was normal, and it was in a fair condition of flesh. When the animal was examined after slaughter the following conditions were noted:

The peritoneum and especially the peritoneal surface of the diaphragm was studded with tubercles of the size of peas. The spleen showed numerous lesions of tuberculosis, resembling the typical miliary tubercles found in bovines. Most of them showing considerable fibrous tissue incapsulation, but occasionally some slight caseation in the centers, none, however, showed any calcification. Few of the thoracic lymphatic nodes showed any caseation, although many of them were much enlarged. The liver showed a great many miliary tubercles on the surface of the capsule. The lungs were studded with miliary tubercles on the surface as well as throughout its structure. The posterior border of the left lung for a distance of ten inches was incased in a fibrous capsule, half an inch thick, while the lung tissue in this area was nearly entirely replaced by a cream colored material of gelatinous consistency, with numerous small necrotic areas throughout. The pleura presented the same appearance as the peritoneum, that is covered with miliary tubercles with a great deal of fibrous tissue, while other lesions showed caseous centers.

While a number of investigators have recorded tuberculosis in the horse prior to 1882, when Koch discovered the specific bacillus of the disease (*Bacillus tuberculosis*), still it must be noted that these reports of the clinical and pathological lesions read more like glanders than tuberculosis.

Although equine tuberculosis cannot be described as a common disease, it is probable that a number of cases have been overlooked in the past, or ascribed to other affections, as the symptoms of the malady are often very obscure.

It will be of interest to learn that of the one thousand horses killed in our abattoir, the present case of tuberculosis is the second that has come under my observation.

DEPARTMENT OF ADMINISTRATION

H. R. MITCHELL, Chief Clerk and Manager of Privileges;
WILLIAM MITCHELL, Cashier.

The special and most important task of this department during the last five years has been the reduction of expenses by economies in all directions, and at a rate that would as nearly as possible offset the rising prices for all supplies and materials.

In the feeding, care and exhibition of a living collection, such as is here maintained, there is a certain standard in food, heat and care that must be kept up, no matter how urgent the necessity for economy. While there has been some reduction in the number of specimens in our collection, the losses have been almost entirely in small specimens such as small animals, small birds and reptiles, which only slightly affect the cost of feeding and care.

The following is a list of the sums expended annually for food, supplies, and expenses other than salaries and wages for the years 1914 to 1919, inclusive, from which it will be noted that the increasing cost of supplies has been more than overcome:

1914.....	\$74,373.44	
1915.....	69,748.72	
1916.....	68,876.84	
1917.....	72,247.63	} Increased by heavy coal requirements during the severe winter of 1917-18.
1918.....	74,273.13	
1919.....	68,807.38	

Taking an eight-year period, our fuel bill was above the average by \$897.95 in 1917 and by \$2,777.68 in 1918.

The great reduction made by the Board of Estimate in our allowance for the maintenance of the Park in 1919 necessitated a careful restudy of our budget estimates for that year. A cut of \$34,219.33 was made in our budget of the amount allowed us by the City being only \$190,000. To curtail our working force to the extent of the entire cut was out of the question, but reductions amounting to \$15,162 were made, and the Executive Committee approved a budget requiring a contribution of \$19,057.33 by the Zoological Society in order to maintain the Park on a satisfactory basis during the year.

Fortunately, we were able to make some unexpected savings so that the sum to be contributed by the Zoological Society at the close of the year was reduced to \$17,572.07; which amount was raised by a special subscription.

Funds and Accounts.—There were no very important changes in Funds and Accounts. Late in the year 1918 a new fund was opened, known as Special Maintenance Fund, the receipts of which were for the purpose of covering the maintenance shortage in 1919. Subscriptions amounting to a total of \$5,700 were received before the first of the year, as detailed in the Treasurer's Report for 1918. Subscriptions to this fund in 1919, as detailed in the Treasurer's Report published elsewhere in this volume, brought the total to \$16,450, which amount was transferred to the City Fund on December 31, to be applied to the purposes for which it was contributed, thus closing the Fund with the year.

The Pheasant Aviary Fund, opened in 1917 for the erection of an outdoor cage for pheasants which had been donated by Colonel Kuser, was closed by the transfer of the unexpended balance to the Income Account, the work having been completed.

The usual audit of our accounts has been completed and the certificate of the auditors appears following the Treasurer's Statements.

Privileges.—Notwithstanding the fact that prices of all commodities entering into the operation of all branches of the Privileges reached levels even higher than were attained before the close of the war, the net results in profits in 1919 were above those of any previous year. Our attendance rose to, and finally passed, our best pre-war figures. The unusual number of out-of-town visitors in New York, due to demobilization, undoubtedly added materially to our attendance figures, and caused an added demand for guide books, post cards and all our publications in the nature of souvenirs, and at the same time they increased the receipts proportionately in all branches of the refreshment service.

Rocking Stone Restaurant.—The total receipts at the restaurant were very considerably increased over last year. In fact, they were greater than in any year of its operation. However,



ON THE WILD-FOWL POND
Wild ducks rising from the water for a flight.
From a photograph by Elwin R. Sanborn.

all restaurant business of this class was so extremely difficult and unprofitable that the net result for the year showed a loss that had to be absorbed by other more profitable divisions of the Privileges. An earnest effort was made to maintain the standard of service without the proportional increase in prices that have been made in downtown restaurants. Another season our prices will have to be advanced considerably if the present conditions continue, or we must be prepared to assume a further loss.

Boating.—The boating receipts for the season made a very satisfactory gain over last year, particularly the receipts for the rental of row boats. A considerable sum had to be expended in the repair of boats, which was continued through the winter by some of our regular force. In addition to this, it was found necessary to replace some of our oldest equipment by the purchase of a carload of standard steel boats. These were delivered early in the season.

Our electric launches were given a much-needed overhauling by a carpenter and now are in very good condition. They gave good service throughout the season.

The two small cashier and refreshment booths on the dock are inadequate for the increased requirements, and another larger booth is being constructed to be ready for use at the beginning of next season.

Boat House Restaurant.—The results in the operation of the Boat-House Restaurant during 1919 were disappointing. The kitchen was again closed during the winter and service restricted to the lunch room; and every possible effort made to reduce the operating expenses. In spite of all our efforts, however, a considerable loss in this branch had to be assumed by the boating business.

Soda Water.—There was a continuation of difficulties attendant upon this branch of the Privileges for the past several years. While most of the restrictions in force during the war were removed, prices of all commodities entering into the business were continually increased. Deliveries were difficult, and good help was almost impossible to obtain for the short season of employment that we can offer. Our policy of pushing the plain drinks and simplifying the service made necessary for

several seasons was continued, and while we were not thoroughly satisfied with the service given, the net results showed a considerable gain over last year.

Guide Book.—The advance in the price of the Guide Book made late last year did not restrict its sale in the least. A great effort was made at that time to hold the price as low as thirty cents, but by the middle of the year it was apparent that a new issue would be needed by September, and prices for a new edition were secured. It was found to be impossible to reproduce the book to sell at thirty cents without a great sacrifice in paper and binding.

We were unwilling to sacrifice the quality, so we were obliged to make the price on the new edition forty cents. The printers' strike came on while the edition was on the press, delaying it greatly. As a result we were without guides for about two months.

Souvenir Books, Postals and Miscellaneous Publications.—The sale of souvenir books was very much heavier than in any previous year. There was a very large stock of the last edition of this publication on hand at the beginning of the year, as it had been a slow seller for several seasons. A special effort was made to reduce the stock, and with excellent results, particularly toward the last of the year, when the supply of Guide Books was getting low and they had to be held back in the hope that it would be possible to make them last until the new edition was ready.

The souvenir post cards sold unusually well throughout the season. By the close of the year the supply was very low, and the matter of a new issue was taken up. The only way to avoid advancing the price per set was by reducing the number of cards and increasing the edition. It was decided to cut out some of the less attractive subjects, reducing the sets to twenty-one cards each and order a thirty-thousand issue, making nearly two million cards. An order was placed accordingly, for delivery early in 1920.

Very satisfactory increases were shown in the sales of our other miscellaneous publications. "Animals in Art Stamps" and "Wild Animal Stamp Primer," both of which are particularly popular with children.

Gate Receipts.—The receipts for admission at the entrances made a very substantial gain over the previous year, amounting to \$11,577.20 as against \$8,864.20 in 1918. The entire sum was placed to the credit of the Improvement and Repair Account. On account of labor difficulties the work carried on from the funds in this account during 1919 was less extensive than in some previous years, with the result that the year closed with a balance of \$12,880.86, a sum sufficient to carry on the work for a year. I suggest, therefore, that Gate Receipts for 1920 be credited to the Animal Fund, as the demands on that fund are likely to be very heavy in the near future.

Riding Animals.—This division of the Privileges had an exceptionally good year. The riding elephant was out early in the season and worked later than usual, adding quite materially to the total result. While it was extremely difficult to get boys as extra help on Sundays who would take proper interest and care in the handling of children, we went through the season without an accident of any serious nature.

REPORT OF THE DEPARTMENT OF FORESTRY AND CONSTRUCTION
FOR THE YEAR 1919.

HERMANN W. MERKEL, Chief Constructor and Forester; E. H. COSTAIN,
Assistant Forester.

From the point of view of Park maintenance, the past year has been the most unsatisfactory of all of the twenty years that have gone before. Owing to the reduction of the appropriation from the city, many economies were necessary in all the departments, but the Department of Maintenance and Construction suffered the most of all.

The force, which had been placed on the lowest possible effective basis during the previous year, owing to war conditions, was further reduced to a large extent, and the leaving of a number of the older and more skilfull employees to obtain better pay elsewhere, made it impossible for the remaining staff to live up to any program, no matter how carefully prearranged; more urgent work, that had to be taken care of immediately, always upsetting the program.

Many matters of routine, such as removal of ashes, cleaning of sewers and manholes, catch basins, inspection and prompt repair of the drainage system, water supply, roofs, gutters, fence and cage work, had to be put off until they in their turn became imperative.

The force was so small that even the arrival of a carload of hay, or the arrival or departure of animals, or the demand for substitutes by the Bird Department interfered with the proper performance of the routine work. And this condition, which prevailed throughout the year, was in no way the fault of the component parts of the labor organization. It was due only to the many economies resulting from the demands of the situation, and the conscientious hard work of the reduced force, that enabled us to keep up appearances in the Park and perform to the best of our ability the routine work of repair and general maintenance.

CARE OF BUILDINGS

Maintenance Fund Repairs, 1919.

Large Bird House.—Sixty-four drinking basins in this building were taken out and reset, and many renewals and repairs to the water supply system, which had become so corroded that it became useless, were made. In many cases 1½" pipe would show a water opening of ¼", which caused many leaks. A great deal of the glass was reset, and leaks were mended wherever possible. Practically the entire cage work and interiors of the two main buildings were repainted.

Lion House.—In this building some urgent boiler-repairs were made. A new hot water supply tank was installed, and a great part of the supply pipes was renewed. A new boiler section was installed in the heating system. Many of the skylights were thoroughly overhauled and made tight. It affords much satisfaction to be able to report that the roof over the cage-deck is now entirely tight for the first time since this building was erected. All the outside cages were painted.

Monkey House.—Only minor repairs to the cage work of this building were made. The plaster of the ceiling of the main

hall received some repairs, and the roofs and gutters were made tight. All of the outside cages were painted.

Rocking Stone Restaurant.—Parts of the shingle roof of this building were renewed, and a portion of the dining room that had been affected by the leaking roof, was replastered. The entire dining room was repainted, and the plumbing and heating systems also were repaired.

Antelope House.—Very necessary roof-repairs were made on this building, some new water and drainage pipes were installed and all of the corral fences were painted.

Zebra House.—At the Zebra House some roof-repairs were made and the door-closing apparatus was overhauled. All of the corral fences and inside cages were painted.

Reptile House.—A number of cages were painted, repairs were made on the various ceilings in the cages and in the lobby, and a great deal of painting was done.

Administration Building.—The Administration Building window frames and sash, and the outside fence were painted, and some repairs were made to the roof-gutters.

Elephant House.—Practically the entire interior cage-walls and ironwork were repainted.

Nursery.—At the nursery, one of the heating boilers was taken down and repaired by electric welding, as it was impossible to obtain any parts for this boiler. The large greenhouse was reglazed and entirely repainted.

NURSERY.

Food Supplies.—Food supplies were raised as heretofore, and a successful effort was made to save the cost of expensive hay by the production of fodder corn and other green foods.

SEWERS

Sewer System.—The sewer demanded a great deal of labor because of three serious stoppages, which flooded cellars and prevented proper sanitation. Luckily, only one of these stop-

pages occurred during cold weather, but the last one, occurring on December 25, with the temperature at 14 degrees above zero, threatened serious results, when the water in the boiler-pit in the Elephant House rose above the grates of the boilers and extinguished the fires. It was only through the help of the Fire Department and unceasing work of the Park force for days and nights that the situation was saved from being calamitous.

EAST SIDE.

East Side.—The sections east of the Bronx River and between the Boston Road and the river were kept policed and as clean as was possible with the reduced force at our disposal. The demand for picnic spaces was unusually large, and 143 picnic permits embracing 18,933 persons were issued. With the help of the Police Department, order was maintained, in spite of the fact that now and then a magistrate would not take seriously such violations of the Park ordinances as the building of fires, breaking of branches and leaving of rubbish. In the conduct of visitors there was a noticeable improvement upon the records of the previous year. The number of arrests made and summonses served were 167, convictions were 162, and the resulting fines amounted to \$310.

Skating.—The open winter season of 1918-19 prevented skating on the Bronx Lake, with the exception of two days. Unfortunately, the weak ice resulted in the death by drowning of three persons, two boys and one man, who persisted in going upon the ice when it was not open to skating, and in spite of dozens of warning signs placed there for their protection. Four other boys were rescued from drowning by the courageous efforts of a U. S. sailor, Bertram E. Reed, at the risk of his own life. By the Director of the Park, Reed was strongly recommended to the Carnegie Hero Fund as a candidate for a hero medal, but for some reason unknown, a medal was not awarded.

THE IMPROVEMENT AND REPAIR FUND.

Walk Repairs.—Only the most necessary items of walk repairs were finished, amounting to 77,765 square feet, at a cost of \$997.54, not including the cost of Tarvia and some traprock which were on hand.

Elephant Fence.—The partition fence in the elephant corral, which had been attacked by the male African elephant, was strengthened with heavy steel rails at a cost of \$257, and additional steel plates were fastened against the partition walls of the indoor cages used by this large and powerful animal.

Lion House Ceiling.—Eleven of the cage ceilings of the Lion House were re-lathed, plastered and painted where necessary, at a cost of \$150.18.

Blackbird Cage.—The sum of \$1,000 was appropriated for the construction of a new cage for blackbirds, to replace the old cage that had become unsightly and useless. Plans for this improvement were made by this department, and about 80% of the work is now completed.

Children's Playground.—This installation was considered necessary on account of the many inquiries for a place where small children sent to the park from schools and institutions might rest, play and eat their lunches. It is located conveniently near the large shelter pavilion, opposite the Fox Dens, and will be supplied with seats and a drinking fountain. About 70% of the work is finished. For this improvement, \$465 were appropriated from the Improvement and Repair Fund.

Cranes' Paddock Fence.—The Cranes' Paddock fence, which had become very much dilapidated, was rebuilt entirely at a cost of \$422.96.

Boiler Repairs.—Boiler repairs to a total cost of \$174.28, an item that could not be assumed by Maintenance, were made by the Improvement and Repair Fund.

Bronxdale Watergate.—A new watergate, to confine the water fowl on Lake Agassiz, was installed under the Boston Road bridge. This gate has a span of about thirty-six feet, and was so designed that the lower portion of it easily may be raised to allow the accumulation of floating rubbish which comes down the river with every flood, to pass. This gate was built at a cost of \$330.41.

Sewer Manholes. — Two new sewer manholes that were needed badly to facilitate cleaning of the main sewer system, were built at a cost to this fund of \$47.25; nearly all of the labor being performed by maintenance men.

Guard Wires.—Wire guards were replaced, calling for the setting of 212 new steel posts, the making and setting of 1936 concrete protecting bases, as well as the stringing of 60,000 feet of new wire. This work could not be completed because of the difficulty of obtaining labor. There was expended for this purpose the sum of \$828.80.

Belgian Animal Shipment.—For the shipment of animals to the Zoological Garden at Antwerp, 110 cages were built; most of them entirely new, though wherever possible, cages on hand were rebuilt to suit the purpose. The cost of all this item was \$604.50; and it was paid by the New York Zoological Society. The handling of this shipment, such as crating and loading on the steamer, was assumed by this Department, with the help of several animal men.

SUMMARY.

Repairs Urgently Needed.

With the return of peace and more settled conditions, the Zoological Park must take in hand more seriously than ever before, the problem of restoring the buildings and other installations as also our grounds, to their former state of excellence. For over three years only the most urgent repairs have been done, and the organization for doing a large share of this work, which formerly existed in good condition, has now disappeared, and must be restored on a permanent basis. Items of repair or restoration have been put off from year to year, and are now threatening the utility and appearance of the Park in every direction and location.

The Maintenance Force, which during the year was reduced to an absolute minimum, again, has not been increased to that of even 1918, nor can this be helped out by the temporary employment of a few additional men out of the Improvement and Repair Fund. This is because all such men are new, and most of them are unskilled in the many phases of the work required of them.

Some of the items that are of urgent importance and must be taken care of in 1920, are as follows:

Walk Repairs.—A close survey discloses the fact that at least 400,000 square feet of walks and roads, some of which

have had no attention for ten years or even more, should be resurfaced. This includes the entire Concourse, nearly the entire Service Road, Grant Walk, Osborn Walk, Buffalo Walk, Beaver Valley Walk, Bird Valley Walk, East Riverside Walk and many others. The sidewalk at the Concourse is now in so dilapidated a condition that it should be entirely relaid on a concrete foundation. The wooden Jungle Walk is entirely decayed and dangerous. A tar macadam walk should be substituted.

REPAIRS TO BUILDINGS.

Entrance Buildings.—Of the older entrance buildings, an entire new roof is needed on the Bronxdale Entrance, and a large portion of the Crotona and Fordham must be renewed. All of these buildings should be supplied with new leaders and gutters in part. New flooring is needed in several of them.

Primate House.—The outside cages, with the exception of the northern cages, are badly in need of overhauling. New water supply pipes must be put in this building. Gutters and leaders, especially cage gutters, need a great deal of attention. The small conservatory never was satisfactory and might well be abandoned.

Lion House.—The roof gutters are in bad condition and require repairs, and the outside cage gutters must be renewed. The iron roof and floor girders must be scraped and painted.

Large Bird House.—The replacing of a large part of the water supply system is necessary, and many of the heating pipes should be renewed.

Aquatic Bird House.—The water supply system must be replaced, and the outside cage-work overhauled.

Eagle and Vulture Aviary.—The boiler in the winter house of the Eagles and Vultures is unsatisfactory and expensive to maintain. A new boiler should be installed. The large Eagle and Vulture cages must be overhauled and repainted next summer, and some changes made in the water supply system. Copper roofs must be placed on two or three of the large cages, for better shelter in winter.

Elephant House.—The smoke stack of the heating system must be overhauled, and new coils are needed in the bathing tanks. A drainage pump should be installed in the cellar.

Reptile House.—The water supply system, both hot and cold, is now in a very bad condition. Breakdowns have occurred repeatedly, and new piping, a new tank and a new boiler-base must be installed during the year 1920. The hanging ceiling in the lobby cuts off a great deal of light. This ceiling should be removed, and the roof above it should be ceiled to present an appearance similar to that of the main hall of the building. The entire interior of the building, including the roof girders, must be painted and varnished. The front doors now are badly worn from exacting usages and new ones should be installed.

Shelter Pavilion No. 1.—A large portion of the roof must be replaced, and an entire new installation of gutters and leaders is necessary.

Soda Pavilion No. 2.—This entire pavilion is in bad condition and should be rebuilt of permanent materials.

Rocking Stone Restaurant.—A new roof must be placed over the passage leading from the kitchen to the dining room. The roofs of both the north and south pavilions must be thoroughly repaired.

Boston Road Comfort Station.—This building must have its entire water supply improved. Under the present conditions, this building becomes unsanitary on every crowded day. The water supply pipes of the various fixtures were too small in the first place, and are now so corroded on the inside that their efficiency has been reduced to 1/10 of their original capacity. A new main from the street, and a new connection with the main on the street also will be necessary before this station will again be in satisfactory condition.

Outdoor Installations.—Of the outdoor installations, the small polar bear den, the upper bear dens, the mountain sheep hill, the lower buffalo fence and a number of smaller items need repairs, and in some cases, new fences.

Bay-Tree House.—The bay-tree storage-house at the Nursery has become inadequate for the proper care of these trees in the winter. The natural growth of these trees for the last fourteen years, and the acquisition of some additional trees by

gift from time to time, have made enlargement of the storage-house imperative. In view of the fact that our bay-trees are as fine as any in the country, and that bay-trees may no longer be imported, and that none are being raised in the United States, those that we have should be preserved most carefully.

Nursery Green-house.—The old boiler at the large green-house which was formerly used in the Park as a Mammal House, has suffered a number of breakdowns, and since repairs to this boiler no longer are possible, a new one should be installed.

WATER SYSTEM.

Water Supply System.—Of the hydrants, troughs, drinking fountains, etc., many of the wrought-iron pipes that were installed during the first five years of the existence of the Park, are badly corroded, and now are comparatively useless, as the pressure has been too greatly reduced. I strongly recommend that all replacements of these pipes be made of the best galvanized wrought-iron pipe, instead of steel pipe, which rusts so quickly.

FORESTRY AND PLANTING.

Forest and Shade-trees.—Our small force of tree pruners has not been able to keep up with the work demanded, and conditions in the forest, especially on the east side of the Bronx River, are getting worse all the time. About all the work that we have been able to do has been to prevent dangerous conditions adjacent to walks, buildings and fences. Now, however, many dead limbs and limb-stubs, as well as some dead trees are present, and a force of at least five men should be kept at work during the next few years to remove these conditions. Most of the pruning, especially that on the very tall old forest trees, only can be done by able bodied men, experienced in this line of work.

Planting.—At the present time, most of our plantings are in satisfactory condition, but the evergreen beds in the Italian Garden which have been deteriorating for some years, should be replanted entirely, as this most prominent feature of Baird Court has become very shabby.



TREE TOAD ON THE TRUNK OF AN OAK

An excellent example of color protection as demonstrated by the camera.
From a photograph by Elwin R. Sanborn.

DEPARTMENT OF PHOTOGRAPHY AND PUBLICATION

ELWIN R. SANBORN, Editor and Photographer; ANNA NEWMAN, Assistant.

Photography.—In 1919, the photographic work comprised various construction subjects and other details about the Park, copies of drawings, printed matter and antlers. The series of birds and reptiles included the Magellan upland geese and young, homing pigeons, emus and young, mute swans and cygnets and Chilean sea eagles. Among the mammals photographed were polar bear cubs, Kobuk River bear, Kodiak bear, Alaskan brown bear, Russian bear and cubs, Bactrian camels, kangaroos, a series of pictures of the young Grant zebra, lynx, and eland and young. Several views of the tank systems at the Aquarium, of beaver works at the Beaver Pond, and of the Pheasant Aviary were taken.

Exhibitions.—An exhibit of the principal buildings, animal enclosures, publications and many animals and birds of the Park in the form of enlargements was prepared and loaned to the St. Louis Public Library. The pictures were all matted and labeled, the animal subjects were colored, and the covers of all the publications were mounted, matted and titled. The collection, which included a large colored map of the Park and gave a most comprehensive idea of the scope of the Society's work, was most warmly commended by the Custodian of the St. Louis Library.

Bulletin.—Six numbers of the Bulletin were issued, but not without great difficulty, and some tribulation. Added to the lack of new arrivals among the animal collections which furnishes a needed source of material, was a strike among the printers. So effectual was the latter that for several months little or no work was done in any printing shop in New York City. And even after the men consented to work, there was a deplorable want of professional pride and a consequent appalling mass of mistakes, heartbreaking delays and mediocre results in the completed job. Nothing was certain, and the task of following the erratic movements and efforts of the printers was the most severe by far that this department ever experienced. It is hardly necessary to speak of the mounting costs of printing, except to say that if they had decreased as much as they have advanced, we now would be paying practically nothing for our work.

Four numbers of the Bulletin covered the usual contribution of the Park. The most noteworthy of these Bulletins was that prepared by Mr. Grant in the interest of the movement to save the forests of Redwoods along the coasts of California and Oregon.

Copies of the Redwoods Bulletin were sent to all United States Senators and Representatives at Washington, and to the Governors and state legislatures of Oregon, Washington and California.

Dr. Townsend and his staff have furnished two numbers of the Bulletin of the usual variety and interest.

Annual Report.—The Annual Report was issued as heretofore, quite up to the standard of former years.

Zoopathologica.—A voluminous paper by Dr. George A. MacCallum, with eighty-four plates, describing eighty-four parasitic forms, was started and much work expended upon it preparatory to sending it to press, but lack of funds caused a temporary abandonment of the task. This paper will be issued in 1920, and now is being revised by the Editor for that purpose.

Zoologica.—Work upon two numbers by W. H. D. Le Souef and Mr. William Beebe was started in 1918 and completed in 1919.

Following is a statement of the photographic work in 1919:

Prints for Album (Aquarium).....	33
Prints for Album (Park).....	122
Prints for Publication.....	343
Prints for Miscellaneous Purposes.....	594
Lantern Slides	16
Enlargements	20
	1,128

THE POLICE OUTLOOK.

The increase of vandalism throughout all the parks of New York has aroused the Board of Park Commissioners to take up the task of providing a far-reaching and permanent remedy. It has been conceded that the rotation in park duty of ordinary

police officers, which is unavoidable under any police system like the present, is a great handicap on the protection of parks. The lack of fixed individual responsibility seems to constitute a great loss of power and efficiency.

After long and careful deliberation, led by the initiative of Mr. Joseph P. Hennessy, Park Commissioner of Bronx Borough, the members of the Park Board unanimously reached the conclusion that the situation now demands a force of special park policemen, chosen with special reference to their effectiveness in park protection, and maintained under the direction of the Board of Parks. The present force of policemen being already too small for the needs of greater New York, the special park force is proposed as an increase, and not as a subtraction from the regular force.

This plan has the hearty approval and support of the Zoological Society. It is, in effect, the principle for which we long have striven, and once enjoyed for six years, in the form of special permanent details of policemen to daily duty in our Park. Having seen the great benefits and economies of this plan, the Society's support of it is based on experience, not theory.

The tendency toward vandalism in public parks is too well known to require description here and it is morally wrong to permit the children of New York to think that in a public park any hoodlum can commit rubbish nuisances and go unpunished. Of all places in America, the grip of the Law needs to be the firmest in New York City.

Most sincerely do we hope that for the good of this great city the Board of Park Commissioners will persevere in their campaign for a force of special park policemen, and that every good citizen of New York will do everything possible to aid that movement.

CONCLUSION.

Like many other institutions and industries, the maintenance of the Zoological Park is hampered by the universal shortage of skilled labor. We now are facing a program of repair work that is scarcely less than appalling. Mr. Merkel's long list of tasks is not exaggerated for the sake of dramatic effect.

Valuable buildings, aviaries, dens, cages and fences, and miles of small water pipes that are becoming damaged by deterioration, cannot wait. All serious deterioration must be stopped, promptly.

The small water-pipes of the Park are of galvanized wrought iron, the life of which is only from 12 to 20 years, and miles of such pipes now are ready to go out of commission through internal corrosion and stoppage with rust. The prospects of digging up and relaying this great outfit is not pleasing to contemplate.

Respectfully submitted,

WILLIAM T. HORNADAY,
Director.

The Thanks of the Antwerp Zoological Society

OUR Society's gift of animals to the Antwerp Zoological Society brought forth a remarkably beautiful and original acknowledgment, addressed to Professor Henry Fairfield Osborn, President. The Royal Zoological Society of Antwerp caused to be executed an illuminated memorial of thanks and appreciation, printed with antique type dating back 350 years, and illustrated with groups of animal pictures, in colors, printed from wood cuts that were made almost at the beginning of modern zoological literature.

It is to be regretted that it is a practical impossibility to reproduce in this volume satisfactory facsimiles of this unique document, but its text is reprinted on the following pages, followed by the reply of Professor Osborn,

A similar acknowledgment was executed and forwarded to the Director of the Zoological Park.

HENRY FAIRFIELD OSBORN, Esq.,
President of the New York Zoological Society.

Dear Sir:

IN the full assembly of the Board of Directors of the Société Royale de Zoologie d'Anvers held on November seventh 1919, you were elected an Honorary Member of the Society, and it was further decided by the Board to confer upon you the Society's diploma and medals.

We earnestly trust you will accept this honorary membership, which has been conferred upon you as a small testimony of the deep gratitude that the Société Royale de Zoologie d'Anvers owes you for the generous and efficient aid that, prompted by you, the New York Zoological Society gave towards the reconstruction of the collections of the Zoological Gardens of Antwerp.

If we are succeeding in raising our Zoological Gardens out of the difficult conditions in which they found themselves after the war, if we are succeeding in reconstructing those collections of animals that were once so complete, it is due in great part not only to your generous support in making us the free offering of such a splendid variety of birds and animals, but also to the strong moral support we have found in the benevolent and opportune intervention of the New York Zoological Society.

Be assured, dear Sir, that we shall never forget this friendly assistance, and that our Society will inscribe your name upon the list of its great benefactors.

With the expression of our highest consideration,

We remain, dear Sir,

Sincerely yours,

THE BOARD OF DIRECTORS

COMTE VAN DE WERVE DE VORSSELAER
Administrateur President

M. GEVERS
Vice-President

E. VANDENHIND
Administrateur Secrétaire

CH. SCHEIDT
Administrateur

G. DE COCK DE RAMEYEN
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GERARD HAVERIESTH
Commissaire

ANDRE MORREN
Commissaire

M. ELSÉN
Commissaire

DR. M. LHOEST
Directeur

LEMOINE
Secrétaire

Antwerp, November fourteenth, 1919.

THE NEW YORK ZOOLOGICAL SOCIETY

OFFICE OF THE PRESIDENT

February the fifth
Nineteen hundred twenty

Dear Sirs:

I HAVE recently received from your Society two beautiful documents and the series of three Medals, in token of my election as an Honorary Member of your Society. I accept this Honorary Membership, as President of the Zoological Society of New York, with a deep sense of gratification that our Society has been instrumental in extending fraternal aid to the Zoological Gardens of Antwerp in the moment of their greatest need.

I have communicated to our Board of Managers and to the Members of our Society this most courteous action of your Board of Directors, and I shall place the beautiful Certificate of Election in a public position in our Administration Building where it may permanently record your sentiments of appreciation.

Near this document will be placed a photograph of the King of the Belgians, who has recently honored our Zoological Park by a special visit.

All of our Managers and Members unite with me in sincere wishes for your new life and prosperity and for the resumption of the beauty and interest which made the Zoological Gardens of Antwerp among the foremost of the world.

With the expression of our high consideration and esteem,

I remain, dear Sirs,

Sincerely yours,

(signed) HENRY FAIRFIELD OSBORN,

President.

TO THE PRESIDENT AND THE DIRECTORS
OF THE SOCIETE ROYALE DE ZOOLOGIE D'ANVERS.



ROOSEVELT DAY IN THE PARK

Governor Allen of Kansas delivering an address at the Italian Gardens.
From a photograph by Elwin R. Sanborn.

REPORT OF
THE PENSION BOARD
TO THE BOARD OF MANAGERS

OWING to the relief of the Pension Fund by the resignation of a large number of members, thereby relieving it from the liability of 165 years accumulated service, and the fact that the interest of invested funds is rapidly helping assume the burden of the pensions already active, and because the Pension Fund has been administered on a very economical basis and that the investments made by the Finance Committee of the Board of Managers have been successful, the Fund is now in a better condition than ever before.

A very serious loss to the Board occurred in the death of Mr. George C. Clark, Chairman of the Board since May 14, 1914, the date of its organization. The friendly relationship, cooperation with the members and the able management of the meetings of the Board, by Mr. Clark, endeared him to all of its members. At the meeting of the Pension Board of March 5, 1919, the following resolution was adopted:

WHEREAS: The Pension Board has learned with deep regret of the death of GEORGE CRAWFORD CLARK, Chairman of the Pension Board since its formation, and one of its most valued members, whose good counsel and untiring interest were always at the service of the Board, therefore it was

Resolved, That the earnest sympathy of the Pension Board be extended to the family of our late member GEORGE CRAWFORD CLARK in their deep bereavement, and that this resolution be spread upon the minutes of the Pension Board.

At the same meeting Mr. Wm. Pierson Hamilton was elected as Chairman of the Board, and has officiated since that time. Mr. William Woodward was appointed by the Executive Committee to fill the vacancy in the Board.

An important event occurred early in the year when the Executive Committee of the New York Zoological Society, upon the recommendation of the Pension Board, revived Sections 15 and 17 of the Pension Rules, providing for Subscribing Employees Widows' Pensions, and for pensions for Widows or Dependents of Subscribing Employees whose death resulted from injuries received in the line of duty. This action was promptly accepted by the Pension Board, so that now the entire published rules are effective.

There were eighteen resignations during 1919, as follows:

<i>Names</i>	<i>Date</i>	<i>Refund</i>
Geo. Rose	Jan. 1	\$102.85
Edw. Bayreuther	Jan. 1	85.50
John J. Smith	Feb. 1	70.47
Ernest Banks	Mch. 31	73.06
Peter Marburger	Apr. 30	92.50
Josephine Schlosser	May 16	7.12
Thos. Keyes	Jun. 9
Gladys Burke	July 5	58.00
Chas. Snyder	July 5	115.47
Howard Engleholm	Aug. 2	27.20
Jas. Randolph	Aug. 15	81.81
Wm. T. King	Sep. 11	82.50
Jas. J. Legg	Sep. 15	98.40
Frank Doyle	Sep. 23	35.90
Louis L. Mowbray	Sep. 30	192.39
Geo. H. Dinsmore	Sep. 30	7.45
Albert Prusse	Oct. 4	97.70
Michael Quigley	Oct. 11	92.50
Total		\$1324.52

The following new members were admitted to the Fund, after being duly certified by the Directors of the Zoological Park and Aquarium respectively, as being permanent employees, and having been examined by the physician of the Board:

George H. Dinsmore	Thos. E. Dwyer
Thos. Keyes	Herbert De Rossi
Wm. Teasdale	William Drebing
Florence Bethel	Clarence T. Suber

One applicant was rejected because of his inability to pass the doctor's examination.

Pensions were granted to the following persons:

Geo. Moran (Incapacitated) Jan. 1, \$25.00 per month.

Mary E. Tompkins (Widow) Feb. 1, \$25.00 per month.

John Downing (Incapacitated) March 15, \$30.00 per month.

Mrs. John Smith (Widow) March 1, \$20.00 per month.

Mrs. John Downing (Widow) June 4, \$673.00, settlement in full.

Mrs. A. Moranville (Widow) Nov. 5, \$29.06 per month (for 4 years, 3 months, 25 days.)

The Pension Fund Income Account funds available for pensions at the close of the present year amounted to \$57,844.55, a net increase of \$9,345.88 from last year. Of this, \$2,353.70 came from interest from investments, \$3,068.50 were received as dues from employees, and \$8,000 came from the New York Zoological Society as its contribution to the Pension Fund.

The close of the year found the Pension Fund with 120 members, of which one hundred are employed in the Zoological Park and twenty at the New York Aquarium; this being fifteen less than last year.

Respectfully submitted,

WM. PIERSON HAMILTON,
Chairman.

HERMANN W. MERKEL,
Secretary.



A WORKSHOP IN A SOUTH AMERICAN TROPICAL JUNGLE
The tent used for preparing specimens at Kartabo, British Guiana.

TROPICAL RESEARCH STATION

Kartabo, British Guiana

REPORT FOR THE YEAR 1919.

STAFF

William Beebe, Director; John Tee-Van, Assistant and Preparateur; Inness Hartley, Albert M. Reese, Research Associates; Alfred Emerson, Clifford Pope, Research Assistants; Isabel Cooper, Artist

RENEWAL of activity at the Tropical Research Station this year resulted in a thoroughly satisfactory amount of work done, a recementing of cordial relations with the British Guiana government, and a staff which in enthusiasm and mutual helpfulness was worthy augury for the years to come.

Environment.—Kartabo, at the exact point of junction of the Mazaruni and Cuyuni Rivers proved to be ideal in every way as a permanent site for the Station. Within ten minutes walk are sandy and rocky beaches, mangroves, grassland, swamp and high jungle, each with a wealth of life peculiar to itself. Free exposure to all the trade winds, the absence of flies and mosquitos, invariable cool nights, an excellent sandy beach for bathing, a large comfortable bungalow besides servants' quarters, and jungle beginning at the very edge of the compound—these left little to be desired. Our health was excellent throughout the entire period of seven months.

We reopened the bungalow, enclosed the entire front with glass to guard the laboratory against wind and rain, purchased a good sized boat and fitted it with an Evinrude engine, and within a month had put the Station upon a smoothly running basis. Two Indian hunters provided food throughout our entire stay. Interesting subjects for observation and study were so abundant and so close, that we seldom went half a mile away from the bungalow. An elaborate map of the whole neighborhood was made by Emerson and Tee-Van on a scale of sixty feet to the inch. This permits of very exact locality records.



THE RESEARCH STATION AT KARTABO

Weather.—The influence of the unusually heavy and prolonged rainy season was to place emphasis on laboratory work during the first three months. But again we proved that no vagary of tropical weather or seasons need interfere with continued, intensive research.

Results Achieved for the Zoological Park.—Influenza has worked havoc among the Indians of the interior of Guiana and this year almost none came down on their annual trading expeditions. Our chief source of supply of live birds and animals was thus cut off, but we were able to secure more than thirty interesting specimens among which were a white collared hawk, a five foot iguana, an armored catfish, and a splendid cock-of-the-rock, which is still in perfect health.

A collection of living animals including a jaguar, ocelot, three capybaras, four golden agoutis, four anacondas, and a jabiru, was deflected from shipment to London and purchased in New York for the Zoological Park.

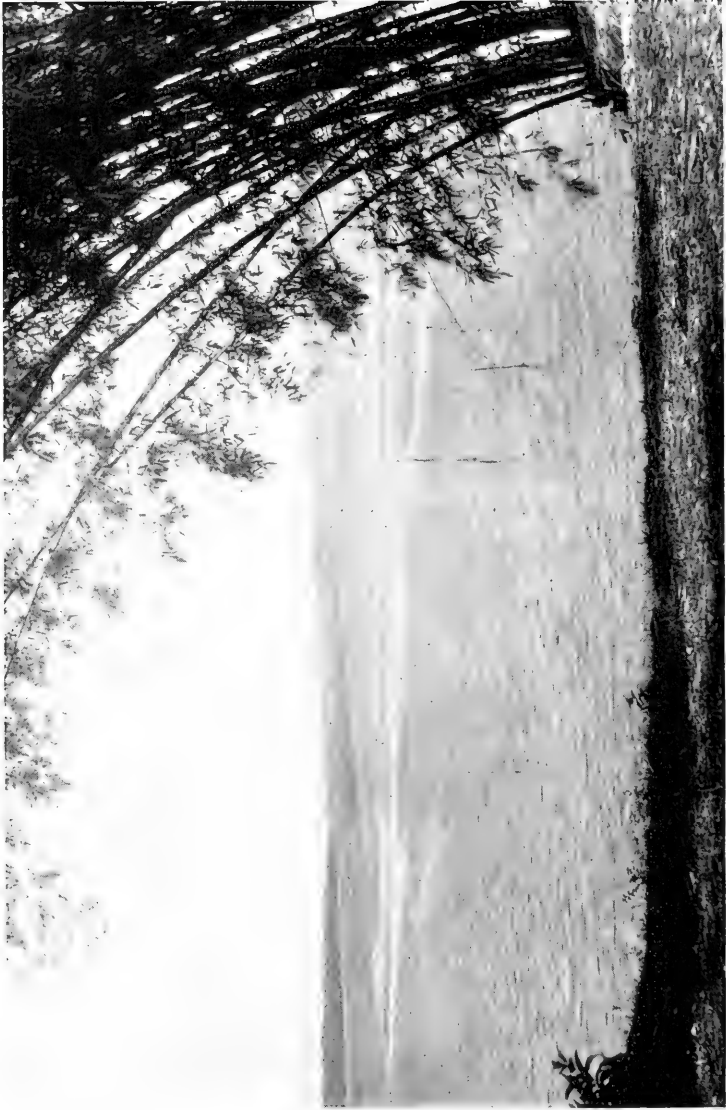
Results Achieved for the American Museum.—Without in any way interfering with the work of the Station it was found possible to collect and preserve a collection of two hundred and seven mammals, skins, skulls and skeletons, with full data, comprising about forty-three species. Among these was a series of thirteen red howling monkeys of various ages for use in a group.

Every reptile and amphibian, except those involved in research problems, was preserved, a collection of two hundred being brought north to the Museum.

A series of crocodile skulls being requested by Professor Osborn for immediate use, five were collected and sent to the Museum.

Results Achieved for the Carnegie Institution.—Constant high water made it impossible to use poison and thus obtain large numbers of electric eels for Professor Dahlgren, but several were caught in nets and preserved and the work will be carried out next year.

By request, twin embryo red howling monkeys were sent to Dr. Adolph H. Schultz of Johns Hopkins University for study.



THE MAZARUNI RIVER
Looking east from the Research Station at Kartabo.

STAFF AND LENGTH OF TIME AT STATION

William Beebe—Zoological Society—Seven months.

John Tee-Van—Zoological Society—Seven months.

Albert M. Reese—Professor of Zoology, University of West Virginia—Two months.

Alfred Emerson—Graduate Student, Cornell University—Seven months.

Clifford Pope—Student in Zoology, University of Virginia—Three months.

Isabel Cooper—Bryn Mawr—Four months.

RESEARCH WORK OF THE STATION

William Beebe.—The Director's work dealt chiefly with general ecological problems and evanescent characters such as color, pattern, tissue form, developmental change and habits of the higher vertebrates. Elaborate studies were made of the eyes of reptiles and amphibians, and in addition the tongue, tarsus, and hyoid apparatus of Formicariidæ, Cotingidæ and Tyrannidæ, and the syringes of one hundred and twenty-two species. Four hundred and seventy-seven photographic negatives were made. The general notes on life histories of vertebrates were greatly increased and will shortly be ready for publication. Six *Peripatus* were studied, one of which gave birth to eight young.

John Tee-Van took entire charge of the economic administration of the Station, the motor boat, the preparation of the three hundred KOH and the insect collections. In addition he made five hundred pen and ink drawings of syringes, tongues, etc. A card index system of syringes was completed.

Alfred Emerson, chose Termites as his object of research and a thesis for his university degree, which will be published by the Zoological Society. Fifty-six new species will be described with biological notes.

Albert H. Reese.—Professor Reese began a microscopic study of the waters of the swamps and rivers, and an intensive ecological investigation of a hundred yards of sandy beach in front of the laboratory.

His chief object of research was the embryology of the crocodile, in pursuit of which he collected two hundred and ten eggs from nine nests, obtaining embryos of all stages.

He also undertook the study of six Tegu eggs found in a termites nest, together with the adults.

Clifford Pope worked on the fish life of the vicinity and obtained extensive and valuable data on thirty-five species. He will continue this work during the coming season.

Isabel Cooper made two hundred and forty-five paintings and drawings in full color of fish, amphibians, reptiles and invertebrates, most of them known heretofore only from colorless alcoholic specimens.

Summary.—The expedition left New York on the S. S. "Guiana" of the Quebec line on February 26th accompanied by Professor and Mrs. Henry Fairfield Osborn who however, owing to uncertain steamer accommodations were compelled to return on the same boat. The Station was officially closed for the present winter and the expedition returned on October 12th.

Work on Volume II of the Pheasant Monograph has occupied the time of the Director for the remainder of the year.

It is planned to leave New York early in May 1920 for another season's work.

PUBLICATIONS OF THE RESEARCH STATION IN 1919

Tropical Wild Life in British Guiana (review).

George Hunter.

Bulletin, Zoological Society, XXII, No. 1, p. 21.

Hammock Nights.

William Beebe.

Atlantic Monthly, February.

List of Amphibia, Reptilia and Mammalia of Bartica District.

William Beebe.

Zoologica, Volume I, No. 7.

Additional Birds of Bartica District.

William Beebe.

Zoologica, Volume I, No. 8.

Lizards of the genus *Ameiva*.

William Beebe.

Zoologica, Volume I, No. 9.

The Tropical Research Station.

William Beebe.

Bulletin, Zoological Society, XXII, No. 4, p. 274.

Termites of Kartabo.

Alfred Emerson.

Bulletin, Zoological Society, XXII, No. 4, p. 275.

A Home Town of the Army Ants.

William Beebe.

Atlantic Monthly, October.

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THE BEGINNING OF A LONG JOURNEY
Catching alligators for shipment to Belgium.

REPORT OF
THE PROSECTOR

TO THE BOARD OF MANAGERS.

I BEG to submit the following Report covering the operations of the Prosector's Department for the period from March 15, 1919 to March 15, 1920.

The material received from the Society's Collections consisted of seventy-eight mammals distributed as follows:

Marsupalia	10	Ungulata	2
Edentata	2	Cetacea	1
Rodentia	15	Primates	20
Carnivora	28	Total	78

Among these the specimen of the newly born pigmy hippopotamus (*Choeropsis liberiensis*) proved of especial scientific interest. Its perfect state of preservation when received and its small size made it possible, after the preliminary vascular injection, to make a complete and most satisfactory morphological examination and record of this rare and important form. Some of the more significant results may be tabulated as follows:

1. The presence of a distinct submaxillary salivary gland and of a reduced lesser sublingual complex.

2. The corrosion of the bronchial system and of the pulmonary artery showed a bilaterally symmetrical eparterial system, a condition not heretofore recorded in the Artiodactyl suborder, and of great significance in interpreting the effect of adaptation to aquatic life on the pulmonary architectonics of this specialized ungulate.

3. The gastro-intestinal and reproductive tracts contributed several new details to the anatomy of the Hippopotamus

and made it possible to accurately determine some still doubtful points.

4. The entire neuraxis was removed in excellent condition for histological study and is now being embedded for serial section.

Another accession which should be especially mentioned in this report is the recent receipt of a foetus near term of the pigmy sperm whale, *Kogia breviceps*. This unique specimen the Prosector owes to the scientific interest and liberality of Prof. F. A. Lucas, Director of the American Museum of Natural History. It was removed from the uterus of an adult purchased by the Museum and reached the laboratory in perfect condition. Many of the anatomical structural details of this whale are either unknown at the present time or very imperfectly determined. It is hoped that the receipt of this fresh and well-preserved material will make an important scientific contribution to this subject possible. The study of the head, including the nasal passage and the larynx, has been placed in the charge of Dr. J. D. Kernan, who has already published his observations on the soft parts of *Kogia* and other cetacean material in the "Annals of the New York Academy of Sciences."

The Prosector's Department keenly realizes that the opportunity for the study of two immature and fresh specimens of hippopotamus and *Kogia* is a most unusual and fortunate occurrence. The unwieldy bulk of the representatives of these types which occasionally become available makes a careful and complete morphological study practically impossible. In these two unique specimens, dwarf character and age have both cooperated to obviate this difficulty and have made complete fixation of the tissues attainable, ensuring a vastly increased range of exact anatomical investigation.

The routine work of the Department and the additions to the research series have proceeded during the year as outlined in previous reports and have been productive.

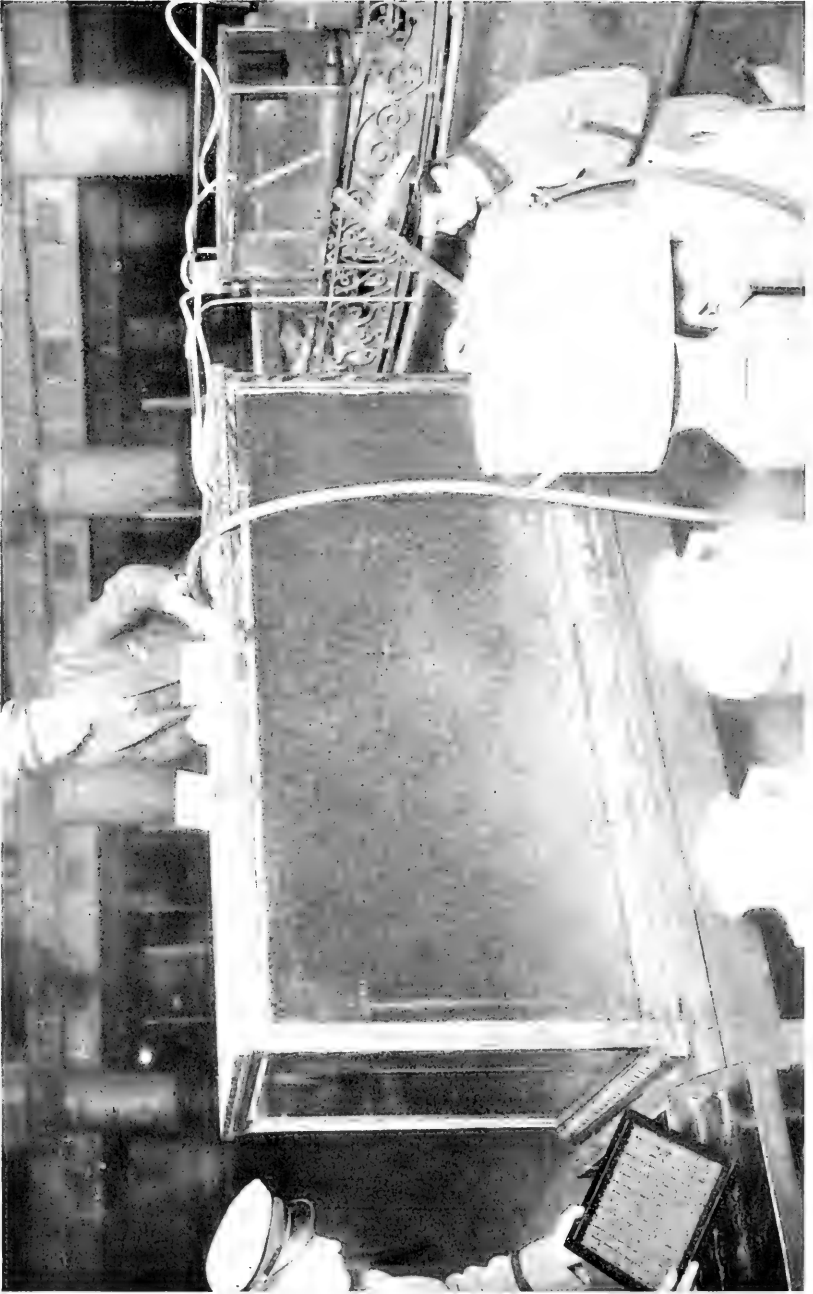
The Prosector takes pleasure in stating that the neurological work under Professor Tilney's charge has reached a point where the Primate series includes complete serial sections of the following brains: Gorilla, Orang, Chimpanzee, Gibbon, *Macacus*, *Cynocephalus*, *Cebus*, *Ateles*, *Mycetes*, *Hapale* and *Lemur*.

A preliminary report on the nuclear organization of the Primate stem was recently made to the Galton Society of Professor Tilney based on this material.

Respectfully submitted,

GEO. S. HUNTINGTON,
Prosector to the N. Y. Zoological Society.

Columbia University,
College of Physicians and Surgeons.



SIPHONING WHITEFISH FRY INTO THE SHIPPING CANS, NEW YORK AQUARIUM

REPORT OF THE
DIRECTOR OF THE AQUARIUM
TO THE BOARD OF MANAGERS

ON DECEMBER 31, 1919 the New York Aquarium completed its twenty-second year. The patronage by the public was large, the number of visitors exceeding 1,850,000—a larger number than was recorded for any year of the war period, but still short of the usual prewar attendance of over two millions annually. During the twenty-two years of its history it had over forty-three millions of visitors, doubtless a world record for any kind of museum.

The Director has little more than routine matters to report, all improvement and repair work having been reduced to the minimum as a result of a reduced maintenance fund and a lessened number of employes.

The living exhibits of the Aquarium were maintained in their usual variety and numbers except as to certain tropical forms. As has been set forth in several previous reports, the collections of the Aquarium cannot be enlarged until additional exhibition space is created by radical alterations in the building.

The recent enlargement of half of the ground floor tanks by removing their rear walls and setting them farther back, served the desirable purpose of increasing their capacity. Alterations of this kind should be continued throughout the ground floor series, but mere enlargements cannot be accepted as substitutes for additional tanks.

It would be possible to increase the number of exhibition tanks both on the main floor and balcony fully one-fifth, by removing the cumbersome pumping plant to an outside building or to the basement, which is capable of enlargement by excavation

The crying needs of the Aquarium, especially those relating to the dilapidated condition of the ancient building which it occu-

pies, may be emphasized by quoting from the annual reports of the director for the past three years:

1916. "The Aquarium, as one of the public museums of New York, continues, despite its unfailing attraction for the people, to represent a neglected opportunity. Possessing a greater interest for the public than any other institution, and forced to carry on the office work of a great museum without the proper facilities for doing so, the fund for its maintenance at present is less than that provided ten years ago. It remains, through lack of space and lack of consideration by the authorities, in a condition of arrested development. Its unique possibilities for usefulness and greater attractiveness have long been apparent. They have, indeed, been set forth persistently by its officers, yet its prospects for early improvement are not encouraging."

1917. "While the institution has always had the patronage of the people to a degree quite unusual among public museums, it has not received official support commensurate with its popularity, its actual field of work and its possibilities for greater usefulness. The unprepossessing external appearance which the Aquarium presents to the visitor is due to the fact that it is housed in an old and inadequately cared for building. It remains the same unsightly structure that it has been for the past one hundred years. Its interior aspects are better, and the structural defects of the building are largely overlooked in the presence of its admirable and extensive living exhibits.

The Aquarium must, by reason of its great interest for the public, be classed as a public museum, and its staff has always been under the necessity of performing duties similar to those of curators in such museums. The fact cannot be overlooked that its work has hitherto been carried on under such serious disadvantages as lack of exhibition and office space and facilities for collecting and caring for its exhibits. The space devoted to exhibits reached its full capacity years ago, so that reasonable growth of its collections has been altogether impossible. The inadequacy of the building to the work required of the Aquarium has not been due to lack of well prepared plans for its improvement. The needs of the Aquarium have been recognized and various plans for its betterment have been submitted and found approval—but action has so far not been secured."

1918. "The position occupied by the New York Aquarium among the public museums of the City is not an enviable one. Confined within its century-old walls and limited in exhibition space to the original one hundred tanks, its growth is restrained as effectively as that of a crustacean unable to molt its old shell. Normal development, such as has attended the other city museums, has been denied it in spite of the fact that in visitors it

is far in the lead. Various plans submitted for its improvement from time to time have been approved—and *placed on file*. The present outlook is no brighter than it was before the war.

A material increase in exhibition space is possible without encroachment on the limited territory of Battery Park, while the daily operation of the mechanical department is still conducted under conditions verging on the intolerable. A disadvantage of long standing is a fire room subject to serious flooding during the neap and spring tides of each month. At such times the firemen wear rubber hip boots and shovel wet coal into the furnaces from half submerged wheelbarrows.

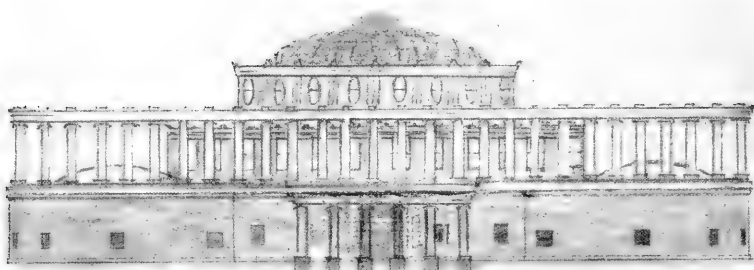
The administrative work of the Aquarium is carried on without the space necessary for effectiveness. The office space is limited, while feed room, repair room, and storage room are all mere make-shifts.

The external appearance of the Aquarium has long been the subject of unfavorable comment. Its light, wooden superstructure, already weakened by the cutting of skylights at various times, should be replaced by something more in keeping with heavy walls of a building originally constructed as a fort. The remedy for the general retardation of the Aquarium lies in the shifting of all machinery to an unused basement, the conversion of the space thus vacated into exhibition tanks, and the addition of a third story for administrative purposes."

On account of the condition of the building and its inadequate maintenance for several years past, the efforts of the director and employes of the Aquarium have been confined to the keeping up of its mechanical department and the maintenance of its exhibits, the improvement and repair of the building being quite impossible under existing circumstances.

The contract of the Zoological Society with the City, so far as concerns the structure itself, has clearly not been fulfilled: "The party of the first part (i. e., the City of New York) shall at all times keep in repair and good condition the said building."

The Director despairs of seeing the Aquarium placed on a basis comparable with those of other museums in the City. It has done its work so far actually without respectable housing, so ruinous are its roof, basement and comfort rooms, and so limited its office, storage, laboratory and feed-room space. The mistreatment of the Aquarium building is of such long standing, that the improvement of the shaky roof alone, an acknowledged and expensive necessity, begets the fear that improvement might end there and leave the Aquarium no better in other respects. Has



A SUGGESTION FOR THE IMPROVEMENT OF THE AQUARIUM BUILDING

This plan contemplates the removal of the existing wooden superstructure, both weak and unsightly, and an enlargement of the building in pyramidal form.

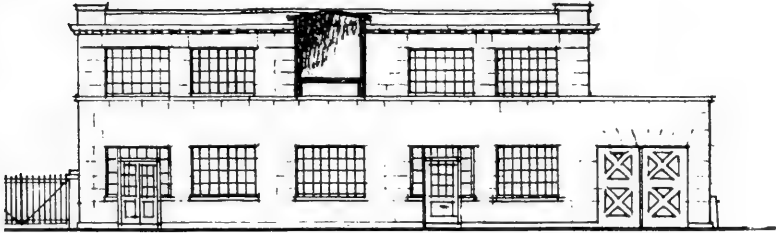
From a sketch by C. H. Townsend

not the time fully arrived for a general improvement that will remedy all defects and give New York an aquarium befitting its position as almost the largest city in the world?

A new plan for the reconstruction of the Aquarium building at a moderate cost as compared with previous plans, has been considered within the year. It provides for a clean sweep of the unsightly and ruinous superstructure, down to the top of the original nine-foot-thick wall of the fort which it was one hundred years ago; its replacement with second and third stories in pyramidal form; and the reclamation of ground floor and balcony space now occupied by machinery, for new exhibition space. Some idea of what is now proposed can be gathered from the accompanying sketch by the Director. This plan involves no encroachment on park territory.

The Collections.—The total number of specimens now in the Aquarium is 4055 and the number of species 168. As compared with the preceding year the figures show an increase in specimens on exhibition of 130, and of species 12. Fishes numbered 2704 specimens and 120 species; invertebrates 1157 specimens and 15 species; reptiles 131 specimens and 23 species; amphibians 60 specimens and 8 species; mammals 3 specimens and 2 species.

Additions were made to the collection of tropical fishes in May and June. The second shipment received from Key West, Florida, was divided among the New York, Philadelphia and Detroit aquariums, all sharing in the expense. The usual autumnal collecting trip to Key West was omitted owing to the general loss of fishing boats at that point during a hurricane.

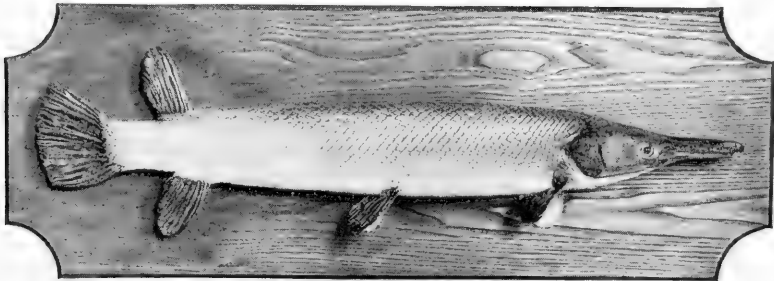


SKETCH OF LOW STRUCTURE PROPOSED FOR THE PUMPING PLANT
OF THE AQUARIUM

Exchanges of specimens were made with the Detroit Aquarium, about 100 fresh-water fishes being added to the New York collection. About 400 fresh-water fishes were received from the New Jersey Fish and Game Commission. Later in the season the Aquarium loaned numerous fresh-water fishes to the New Jersey Commission for exhibition at the State Fair at Trenton, receiving at the close of the Fair 84 specimens of seven different species, which were safely transported to New York.

Numerous fresh-water turtles were collected and presented to the Aquarium by Dr. J. B. Pardoe of Bound Brook, N. J.

Mr. Henry Whiton of New York presented specimens of the alligator garfish or giant gar (*Lepisosteus tristoechus*) from Louisiana, which were lost at New York during a night of zero weather, before they could be removed from the steamer. The loss of the gars is greatly to be regretted, as they were the first to be brought to New York. The specimens were collected at Lake Calcasieu, Louisiana, under the direction of Mr. Whiton and shipped by his authority on the Union Sulphur Company's steamer *Hewitt*, the writer accompanying them. The Aquarium



GIANT GARFISH FROM LOUISIANA

has not heretofore attempted the transportation of fresh-water fishes by sea. The forty-two specimens shipped were carried in seven wooden tanks, eight feet long. As the supply of fresh water on board ship was limited, the water could not be changed except for small additions. It was, however, constantly aerated by means of a small steam-driven air compressor with air pipes leading to each tank. Only two of the gars were lost during the voyage, a good illustration of the hardiness of this species. The fishes were captured ten days before shipment and were on board the steamer eleven days more. An attempt was made to feed the fishes a week after their capture, but all food was refused. The specimens varied in size from two to four feet, the smaller sizes predominating. The experiment was of interest as showing that fresh-water fishes can be transported by this method, especially when tanks of large size are used to insure a plentiful supply of water.

Mr. Whiton also presented a sixty-six pound alligator snapping turtle (*Macrochelys lacertina*) from Louisiana.

Capt. Chapman Grant, U. S. A., sent to the Aquarium from California a specimen of the large crayfish (*Astacus*) found in the Columbia River and its tributaries. It was forwarded by mail in a pasteboard box, in wrappings of damp paper, reaching the Aquarium alive. Later he brought three more in person, these specimens also being packed in damp paper. This experiment in transporting crayfishes without water is of decided interest. The *Astacus* of the Columbia River averages twice the size of ordinary American crayfishes and has long been shipped from Oregon to the markets of San Francisco.

Capt. Grant also presented seventeen red-bellied salamanders (*Diemyctylus torosus*) which were sent from California by mail in damp moss, fifteen of them reaching New York alive.

Mrs. Estella Kahn of New York presented an important anatomical model of the maigre (*Sciaena aquila*), about five feet in length, mounted in a glass case. The maigre is a marine food fish of European waters.

Two young harbor seals (*Phoca vitulina*) captured in Maine, were purchased in July and are of much interest to visitors.

The New York Conservation Commission presented twenty-four lake trout, half of which were albinos with pink eyes. The specimens averaged about ten inches in length. These fishes

which were received in January, are at the close of the year in thriving condition.

The sea horse (*Hippocampus hudsonius*) seems to have disappeared from local waters, where it has hitherto been common. Specimens have not been available for two years although the collectors have visited several points where it was formerly obtainable. No single exhibit in the Aquarium is of more interest to visitors than a collection of sea horses, inquiry about them being made almost daily. The sea horse has no power to stem tides and currents and is not known to be migratory, having been taken about Long Island during most months of the year. Its disappearance may be attributed to the unusually severe winter of 1918.

The fish-culture exhibit was maintained as usual, fish eggs were supplied from government hatcheries by the U. S. Bureau of Fisheries and from New York State hatcheries by the Conservation Commission. The output of young fishes consisting of yellow perch, pike-perch, smelt and whitefish, to the number of six millions, was turned over to the states of New York and New Jersey for deposit in public waters. The whitefish were deposited chiefly in Lake Champlain.

Limulus to Monaco.—At the request of the Prince of Monaco the Aquarium sent twenty-five specimens of horse-shoe crabs (*Limulus*) to the Oceanographic Museum at Monaco. As had been done in the case of former shipments of this species to Europe, they were sent in crates without water, instructions being given that the crates should be wetted each day with sea water. Owing to lack of care while in the hands of the shipping agent at Newport News, Virginia, the specimens became weakened and none survived the sea voyage. Free transportation to Marseilles on the Union Sulphur Company's steamer *Hewitt* was secured through the courtesy of Mr. Henry Whiton of New York. Arrangements are being made for another shipment.

Collecting Boat.—Early in February the Executive Committee authorized the construction of a 35-foot motor-driven well-boat for the use of the Aquarium. As all of the exhibits of the Aquarium are collected by the employes, a suitable collecting boat has always been needed. Owing to labor troubles, this vessel was not completed in time for use during the present year. Its launching has therefore been postponed until April 1920. The vessel is of very staunch build, and will be available for work

anywhere along the coast. With a boat of this character in commission, it will be possible to bring the living exhibits up to a standard not yet attained by any Aquarium.

Exhibit of Fancy Goldfishes.—On November 27 to 30, the Aquarium Society of New York, an organization devoted to the breeding and rearing of fresh-water fishes for small aquaria, held an exhibition of fancy breeds of goldfishes in the Aquarium. It attracted considerable attention. The 24 tanks constituting the exhibit were displayed chiefly on the coping of the central pool.

Improvements to Building.—The only improvements made to the building during the year by the City were temporary repairs to the roof. Toward the close of the year the Park Department authorized long needed repairs to the public lavatory in the Aquarium, but this work has not yet been commenced.

Painting and Repair Work.—A considerable amount of much needed painting of wooden reserve tanks, distributing tanks, heavy piping and pump room machinery was accomplished through the industry of the employes. They also did excellent repair work on two large wooden filter tanks, each eight feet in diameter, which had begun to deteriorate. These tanks were lined with wire netting firmly secured with staples and then heavily coated with cement to close leaks and to insure their preservation.

Renewal of Furnace Walls.—The rebuilding of furnace walls was done by contract. The walls are exposed to intense heat the year round and require repairs annually.

Gravity Filters.—The Jackson gravity filters installed in 1908 in connection with the reservoir of stored sea water, are in need of extensive repairs, the lead pipes in the bed of the filters having become much corroded and otherwise deteriorated. These filters have rendered excellent service and must be put in thorough repair at an early date. No more simple and effective type of filter has yet been designed for such a purpose. It continually carries off the overflow of sixty exhibition and reserve fish tanks, returning the water to the reservoir cleared of all matter likely to affect its purity or transparency. The entire bed of the concrete filtering chamber is covered with closely laid horizontal pipes of lead half sunken in the concrete. The exposed part of each pipe has innumerable crosswise cuts made with fine saws, which permit a rapid drainage of water without any loss of the



FILTER BED OF LEAD PIPES HALF-BEDDED IN CEMENT, THE EXPOSED SURFACES HAVING INNUMERABLE, FINE CROSSWISE SAW CUTS TO SECURE RAPID DRAINAGE



FIVE TYPES OF STRAINERS USED IN THE AQUARIUM TO PREVENT ESCAPE OF SPECIMENS FROM TANKS



LEAD FILTER PIPE
WITH SAW CUTS

overlying sand. With the help of an expert lead-burner it is believed that the necessary repairs can be made by the employes of the Aquarium at comparatively little cost.

Reservoir.—The Aquarium reservoir is at present well filled with stored sea water. An addition of several thousand gallons was made during the summer to replace losses by evaporation, leakage, shipments to other aquariums and donations to public schools for small marine aquaria. All additions of sea water to the reservoir are brought by boat from the ocean, the water of New York Bay being too foul for aquarium purposes.

Coal.—The consumption of coal during the year was 956 tons, the cost of which was \$7,037.00.

Employes.—Early in 1909 two employes of the Aquarium (Messrs. Sutcliffe and Shea) who had been in military service, returned to the Aquarium. In the autumn Mr. L. L. Mowbray, who had been on the staff of the Aquarium for five years, resigned to take charge of the Aquarium now being built at Miami, Florida. The present number of employes is 23.

Aid to Schools and Teachers.—In accordance with a practice established many years ago, the Aquarium distributed during the year more than a thousand living marine specimens to forty-two public schools requesting fishes and invertebrates for school aquaria. The number of school children visiting the Aquarium accompanied by teachers, was 7,761.

New Guide Book.—The publication of the Guide Book, the manuscript and illustrations for which have long been in the hands of the printer, has been delayed on account of labor troubles. Although the work of printing has been completed, the work of binding has not yet been commenced. The Guide Book contains 170 pages and 160 illustrations. The number of species considered is 350. All the illustrations, with the exception of four or five, were made from specimens living in the Aquarium.

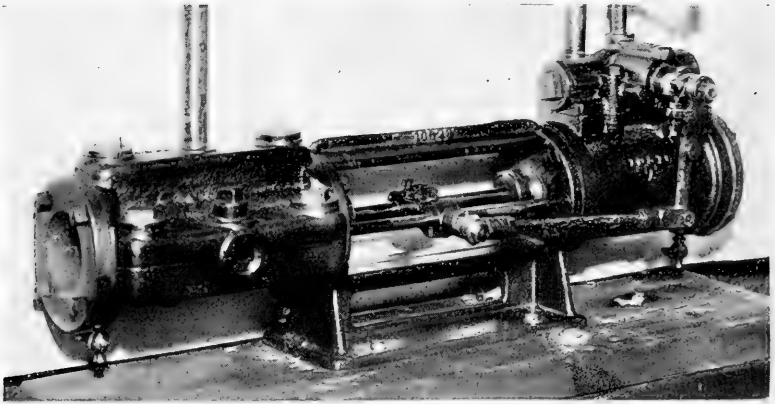


HAND AIR COMPRESSOR FOR THE AERATION OF SHIPPING TANKS

Annual Reception.—The annual reception to members of the New York Zoological Society on the evening of May 12 was attended by 408 persons. Plants for decoration were loaned by the Commissioner of Parks and also by the Zoological Park. Motion pictures of aquatic life were shown and music and refreshments were provided.

Distinguished Visitors.—King Albert of Belgium, accompanied by the Crown Prince, members of his staff, and a committee of citizens, visited the Aquarium on October 4, the party remaining half an hour. The King manifested a decided interest in the collections, especially the more intimate views which were permitted by a visit behind the scenes.

Another distinguished visitor was President Pessoa of Brazil who, on July 3, inspected the Aquarium very thoroughly and took pleasure in giving a detailed account of the aquarium in Rio de Janeiro. Mr. Carlos Moreira, director of that institution, also visited the New York Aquarium to study its equipment and methods.



STEAM-DRIVEN AIR COMPRESSOR FOR THE AERATION OF
TANKS ON SHIPBOARD

Attendance.—The attendance for 1919 was 1,850,575, an increase of 399,866 as compared with that of the previous year. These figures indicate that the falling off in attendance which occurred during the war is probably at an end. The daily average for the year was 5,070.

ATTENDANCE AT THE AQUARIUM BY MONTHS, 1919.

January	visitors....	111,835	Daily average....	3,607
February	“	121,108	“ “	4,322
March	“	139,983	“ “	4,516
April	“	165,185	“ “	5,506
May	“	182,406	“ “	5,884
June	“	192,387	“ “	6,412
July	“	203,976	“ “	6,579
August	“	233,554	“ “	7,534
September	“	174,288	“ “	5,809
October	“	136,291	“ “	4,396
November	“	118,864	“ “	3,962
December	“	70,697	“ “	2,280
Total	“	1,850,575	“ “	5,070

Record of monthly mean temperatures and specific gravities at the New York Aquarium during the year 1919 (from daily observations made by Mr. W. I. DeNyse):*

*Specific gravity observations were made with samples of water brought to a temperature of 60° Fahrenheit.

Harbor Water—Temperature and Specific Gravity

	Temperature.	Specific Gravity.
January	43°	1.012
February	41°	1.014
March	43°	1.011
April	45°	1.009
May	51°	1.011
June	60°	1.012
July	67°	1.014
August	68°	1.014
September	68°	1.013
October	64°	1.013
November	57°	1.011
December	46°	1.012

Accessories.—In making shipments of fishes by train or otherwise, where a steam-driven air compressor is not available, the use of a hand air pump saves much labor. An air pump of the kind shown in the accompanying photograph has been added to the collecting equipment of the Aquarium. With branch pipes of rubber led to each tank, the work of aerating the water is simplified and made more effective. The end of each branch pipe is plugged with porous wood which liberates the air as a fine mist and not in large and ineffective bubbles.

All exhibition tanks in an aquarium must be supplied with strainers of some sort in their top overflows and bottom drains, to prevent the escape of small fishes and the clogging of waste pipes with various substances. In salt water tanks where metal and wire strainers rust out quickly, their renewal involves considerable expense, while their rusting serves to discolor the supply of stored sea water. The use of strainers made of lead or rattan has obviated these troubles. Several types are shown in the accompanying photograph.

Appropriation.—The appropriation for the year 1919 was reduced to the legal minimum of \$45,000. The appropriation for the ensuing year has been fixed at \$54,891.30, but the increase will necessarily be devoted to the advancement of wages, and the Aquarium will probably be unable to make a number of needed repairs.

Respectfully submitted,

CHARLES HASKINS TOWNSEND, *Director.*

LIST OF BOOKS
IN THE
LIBRARY OF THE NEW YORK AQUARIUM*

Prepared by IDA M. MELLEN

Legend: (Ownership)

C—City

S—New York Zoological Society

S-a:

S-b: On deposit with the Society

T :

FISHES

Biology, Diseases, Miscellaneous

MIGRATIONS OF FISH (C)	<i>Meek</i>
MARVELS OF FISH LIFE (C)	<i>Ward</i>
THE STORY OF FISH LIFE (T)	<i>Pycraft</i>
STORY OF THE FISHES (C)	<i>Baskett</i>
FOOD OF FISHES (S)	<i>Forbes</i>
HABITS OF FISHES (S)	<i>Gill</i>
(2 vols.)	
HANDBUCH DER FISHKRANKHEITEN (C)	<i>Hofer</i>
(Fish diseases, parasites, etc.—German)	
PSOROSPERMS OF FISHES (S)	<i>Gurley</i>
KRANKHEITEN DER AQUARIENFISCHE (C)	<i>Roth</i>
(Diseases, parasites, etc.—German)	
FISHES LIVING AND FOSSIL (C)	<i>Dean</i>
ICHTHYOLOGY AND EMBRYOLOGY (C)	<i>Misc.</i>
POISSONS VENENEUX (C)	<i>Savtschenko</i>
(Russian and French)	
FRESH-WATER FISHES AND THEIR ECOLOGY (S)	<i>Forbes</i>
CHANGES IN COLOR IN FISHES (S)	<i>Mast</i>
ADJUSTMENT OF FLATFISHES TO BACKGROUNDS (S)	<i>Sumner</i>
PAPERS ON COLORATION IN FISHES (T)	<i>Misc.</i>

*Besides the books listed, there are about 1,000 pamphlets in the Aquarium Library, covering much of the field of aquatic life.

FISHES (C)	<i>Girard</i>
PLATES OF FISHES (T) (Pacific Reports)	
SHORE FISHES, ATLANTIC OCEAN (S)	<i>Gunther</i>
FISH AND FISHING (S-b)	<i>Manley</i>
THE PRACTICAL FISHERMAN (S-b)	<i>Keene</i>
ICHTHYOLOGIE DE NICE (S-b)	<i>Risso</i>
(Natural History of Fishes—French)	
FRANK FORESTER'S FISH AND FISHING OF THE UNITED STATES AND CANADA (S-b)	<i>Herbert</i>
SHAW'S ZOOLOGY—FISHES (S-b) (Vol. 4, Parts 1, 2; Vol. 5, Parts 1, 2)	
DICIONAIRE DES PECHEES (S-b)	<i>De la Blanchere</i>
(French)	
ICHTHYOLOGIE (S-b)	<i>Bonaterre</i>
(French)	
ICHTHYOLOGIA (S-b)	<i>August</i>
DE PISCIBUS (S-b)	<i>Rondeletii</i>
(Latin)	
ANIMAL KINGDOM—THE CLASS PISCES (S-b)	<i>Cuvier</i>
HISTORIA PISCUM (S-b) 1686	<i>Willughbeii</i>
(Latin)	
ICHTHYOLOGIE (S-b)	<i>Blach</i>
(French)	
FISHES (S-b) (Structure and Physiology) 1785	<i>Munro</i>
THE STUDY OF FISHES (C)	<i>Gunther</i>
GENERA OF FISHES (T)	<i>Jordan and Evermann</i>
(Paper)	
GUIDE TO THE STUDY OF FISHES (C)	<i>Jordan</i>
BIBLIOGRAPHY OF FISHES (S)	<i>Dean</i>
(Authors, vols. 1 and 2)	
CHECK-LIST OF FISHES (T)	<i>Jordan and Evermann</i>
(Paper)	
Special Species	
THE BOOK OF THE TARPON (C)	<i>Dimock</i>
THE TARPON (T)	<i>Babcock</i>
(Paper)	
BROOK TROUT (S)	<i>Allerton</i>
THE TROUT (C)	<i>Granby and others</i>
THE SALMON (C)	<i>Gathorne, Hardy, and others</i>
SALMON AND TROUT (C)	<i>Sage, Townsend, Smith, and Harris</i>
BASS, PIKE, PERCH, ETC. (C)	<i>Henshall</i>
THE BASSES (C)	<i>Harris and Bean</i>
BOOK OF THE BLACK BASS (C)	<i>Henshall</i>
WHITEFISHES OF NORTH AMERICA (S)	<i>Evermann and Smith</i>
THE SPOTTED EAGLE RAY (S)	<i>Gudger</i>
GERMAN CARP IN THE UNITED STATES (S)	<i>Cole</i>
SHARKS OF LONG ISLAND (T)	<i>Nichols and Murphy</i>
(Paper, 2 items)	

- SHARKS AND RAYS OF NORTH CAROLINA (T).....*Radcliffe*
(Paper)
- NATURAL HISTORY OF AMIA CALVA (S).....*Reighard*
- DISTRIBUTION OF FRESH-WATER EELS (S).....*Schmidt*
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 SEVENTH INTERNATIONAL ZOOLOGICAL CONGRESS (S)
 (1907) (Paper)
- ANNUAL REPORT, SMITHSONIAN INSTITUTION
 1884 (Part II), 1885 (Part I), 1886-1905. 1913. 1915-1917
- ANNUAL REPORT, BOARD OF REGENTS, SMITHSONIAN INSTITUTION (S)
 1905-1918
- REPORT, SECRETARY OF THE SMITHSONIAN INSTITUTION (S)
 1909, 1910, 1915, 1919 ((Paper)
- BULLETIN, U. S. NATIONAL MUSEUM (S)
 1884 (Paper)
- PROCEEDINGS, U. S. NATIONAL MUSEUM (S)
 Vol. 1 (1878) to Vol. 55 (1920)

- MUSEUMS AND KINDRED INSTITUTIONS OF NEW YORK AND OTHER CITIES (T)
Meyer (Paper)
- MARINE BIOLOGICAL STATION AT PORT ERIN (T).....*Herdman*
 Annual Reports. 1908-12. 1914. 1916-19
- PROCEEDINGS, ACADEMY OF NATURAL SCIENCE, PHILADELPHIA (S)
 1913-1916 (Paper)
- PROCEEDINGS, AMERICAN ASSOCIATION OF MUSEUMS (T)
 1906-1916 (Paper)
- REPORTS OF THE NEW YORK ZOOLOGICAL SOCIETY (S)
 1896 to date
- ZOOPATHOLOGICA (S)
 (Scientific Contribution of the New York Zoological Society on the
 Diseases of Animals.) Vol. 1, Nos. 1, 2, 3, 4, 5. (Paper)

ENCYCLOPAEDIAS

- JOHNSON'S UNIVERSAL CYCLOPAEDIA (C)
 8 vols.
- CENTURY CYCLOPEDIA (C)
 12 vols.
- HARPER'S LATIN DICTIONARY (C)
- ATLAS OF THE WORLD (C)
 2 vols.

Treasurer's Reports

FOR THE YEAR ENDING DECEMBER 31, 1919.

Income Account

Schedule 1.

Unexpended balance as of December 31, 1918:			
Available for expenditure during 1919.....	\$10,877.24		
Investments:			
\$2,000 New York, Lackawanna & Western			
Terminal 4% Bonds.....	1,980.00	\$12,857.24	
			RECEIPTS.
Annual Dues	\$18,150.00		
Sustaining Memberships	440.00		
Transfer from Endowment Fund Income Account	16,168.00		
Transfer from Pheasant Aviary Fund.....	93.21		
Interest on bank balances.....	1,320.14		
Interest on investments.....	80.00		
Red Cross War Fund.....	331.75		
Employees Co-operative store.....	1,417.54		
Special Subscriptions:			
American Museum Natural History..	\$400.00		
Miscellaneous	5.00	405.00	38,405.64
			EXPENDITURES.
Annual and separate reports.....	\$4,381.17		
Bulletin	4,472.76		
Photographs and slides.....	945.40		
Zoologica	1,821.31		
Cost of distribution of publications.....	79.80		
Expenses, Annual Meeting	729.88		
Expenses of receptions	1,293.50		
Treasurer's office expenses	1,600.00		
General office expenses	4,926.85		
Audit of accounts	850.00		
Liability insurance	2,345.00		
Salary of Secretary	5,000.00		
Aquarium expenses	137.85		
Office supplies and printing.....	2,007.51		
Aquarium specimens	1,028.05		
Aid to employees.....	3,474.00		
Pension Fund Income Account.....	3,665.00		
Insurance	176.81		
Military service allowance.....	399.65		
Aquarium collecting launch.....	3,450.00		
Special Maintenance 1919 (transfer).....	1,000.00		
<i>Carried forward</i>	\$43,784.54		\$51,262.88

<i>Brought forward</i>	\$43,784.54	
Preparation and mailing of circulars.....	2,611.18	
Library Fund (transfer).....	100.00	
Miscellaneous expenses	2,831.27	49,326.99
<hr/>		
Unexpended balance as of December 31, 1919:		
Available for expenditure during 1920.....	945.89	
Investments:		
\$1,000 New York, Lackawanna & Western		
Terminal 4% Bonds (one sold during year		
for \$990)	990.00	1,935.89
<hr/>		
		\$51,262.88
H. R. MITCHELL,	PERCY R. PYNE,	
<i>Chief Clerk.</i>	<i>Treasurer.</i>	
January 1, 1920.		

Maintenance Fund
ZOOLOGICAL PARK

Schedule 2.

RECEIPTS.

Received from the City on account of Park Main-		
tenance Appropriation of \$190,000 for the year	\$183,328.63	
Due from the City on account of Park Mainte-		
nance Appropriation	6,671.37	\$190,000.00
<hr/>		
Shortage paid from funds of the Zo-		
ological Society:		
Transferred from Special Mainte-		
nance 1919	\$12,202.33	
Transferred from Income Account		
from subscription to Special		
Maintenance 1919 paid in 1920...	715.00	12,917.33
<hr/>		
Salary Bonuses paid Park employees from Special		
Maintenance 1919	4,247.67	17,165.00
<hr/>		
		\$207,165.00

EXPENDITURES.

Maintenance of buildings and care of collections	\$59,634.49
Maintenance and care of grounds.....	53,486.56
General administration	20,988.90
Food for animals	38,274.72
Fuel	11,448.59
Uniforms and miscellaneous wearing apparel....	2,148.69
Paints and oils.....	1,386.96
Lumber	1,300.15
Plumbing repairs	1,221.96
Miscellaneous supplies	1,090.18
Plumbing materials	956.97
Electric service	883.38
Miscellaneous materials	826.76
Miscellaneous equipment	749.62
Motor vehicle supplies.....	728.83
<hr/>	
<i>Carried forward</i>	\$195,126.76

<i>Brought forward</i>	\$195,126.76	
Telephone service	719.40	
Office supplies	652.72	
Janitors' equipment	502.19	
Fuel oil	495.67	
Stationery and printing.....	428.54	
Sand, cement and brick.....	393.50	
Rubber hose	348.48	
Bolts, nails and hardware.....	334.26	
Janitors' supplies	322.82	
Expressage and deliveries.....	319.23	
Furnace repairs and replacements.....	307.82	
Steel and iron.....	270.86	
Medical attendance, employees.....	223.00	
Nursery stock and seeds.....	217.20	
Motor vehicles and equipment.....	212.28	
Tools and machinery.....	202.94	
Apparatus and machinery repairs.....	178.93	
Motor vehicle materials.....	157.71	
Painting labels	136.00	
Electrical materials	130.86	
Drugs and medicines.....	129.31	
Disinfectants	123.66	
Fencing and netting.....	122.00	
Ice	114.50	
Miscellaneous expenses	113.50	
Sanitary service	110.50	
Painters' equipment	103.30	
Lubricating oils	92.32	
Harness and vehicle repairs.....	67.20	
Medical attendance, animals.....	54.00	
Motor vehicle repairs.....	45.65	
Glaziers' materials	38.86	
Gas service	37.44	
Nursery supplies	26.30	
Office furniture and fixtures.....	22.32	
Miscellaneous repairs	20.57	
Medical and surgical supplies.....	11.58	
Medical equipment	3.15	202,917.33

Salary bonuses paid Park employees from
Special Maintenance, 1919.....

4,247.67

\$207,165.00

H. R. MITCHELL,
Chief Clerk.
January 14, 1920.

PERCY R. PYNE,
Treasurer.

Animal Fund

Schedule 3.

Unexpended balance as of December 31, 1918:		
Cash in bank	\$29,684.26	
Cash on hand.....	100.00	\$29,784.26

RECEIPTS.

Receipts from Park:		
Sale of animals.....	1,213.00	
Checking	18.00	
<i>Carried forward</i>	\$1,231.00	

<i>Brought forward</i>	\$1,231.00	
Miscellaneous	34.72	
Privilege Account, account 1919 receipts....	17,000.00	
Boating, account 1919 receipts.....	5,000.00	23,265.72
		<hr/>
		\$53,049.98

EXPENDITURES.

Mammals	\$6,462.00	
Birds	4,591.50	
Reptiles	620.24	
Insect collection	14.48	\$11,688.22
		<hr/>
Express and other charges.....	1,037.51	
Traveling and other expenses.....	619.86	1,657.37
		<hr/>
Unexpended balance as of December 31, 1919:		
Cash in bank.....	39,604.39	
Cash on hand.....	100.00	39,704.39
		<hr/>
		\$53,049.98

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Stokes Bird Fund

Schedule 4.

Unexpended balance as of December 31, 1918:		
Cash in bank	\$458.54	
Investment: \$5,000 Illinois Central Railway 4% Gold Bonds	5,056.46	\$5,515.00
		<hr/>

RECEIPTS.

Interest on investment		200.00
		<hr/>
		\$5,715.00

EXPENDITURES.

Unexpended balance as of December 31, 1919:		
Cash in bank.....	\$658.54	
Investment: \$5,000 Illinois Central Railway 4% Gold Bonds.....	5,056.46	\$5,715.00
		<hr/>

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

National Collection of Heads and Horns

Schedule 5.

Unexpended balance as of December 31, 1918.....	\$107.16
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RECEIPTS.

Special Subscription:	
John J. Paul	50.00
	<hr/>
	\$157.16

EXPENDITURES.		
Heads and horns.....	\$85.00	
Express and other charges.....	3.27	\$88.27
		<hr/>
Unexpended balance as of December 31, 1919....		68.89
		<hr/>
		\$157.16
H. R. MITCHELL, <i>Chief Clerk.</i> January 1, 1920.	PERCY R. PYNE, <i>Treasurer.</i>	

Library Fund

Schedule 6.		
Unexpended balance as of December 31, 1918.....		\$209.48
RECEIPTS.		
Income Account (transfer).....		100.00
		<hr/>
		\$309.48
EXPENDITURES.		
Subscriptions to periodicals.....	\$105.45	
Books, pamphlets, etc.....	136.62	\$242.07
		<hr/>
Unexpended balance as of December 31, 1919....		67.41
		<hr/>
		\$309.48
H. R. MITCHELL, <i>Chief Clerk.</i> January 1, 1920.	PERCY R. PYNE, <i>Treasurer.</i>	

Maintenance Fund

NEW YORK AQUARIUM

Schedule 7.		
RECEIPTS.		
Received from the City on account of Aquarium Maintenance Appropriation of \$45,000.00 for the year	\$36,882.69	
Due from the City on account of Aquarium Maintenance Appropriation	8,117.31	
Due from City on account of 1918 coal paid for in 1919	510.16	\$45,510.16
		<hr/>
Shortage paid from funds of Zoological Society; Transferred from Special Maintenance Sub- scription, paid in 1920.....		407.07
		<hr/>
		\$45,917.23
EXPENDITURES.		
Salaries	\$32,442.96	
Forage and Veterinary supplies.....	2,719.59	
Office Supplies	79.01	
Laundry, Cleaning and Disinfecting Supplies....	50.05	
Refrigerating Supplies	136.75	
		<hr/>
Carried forward	\$35,428.36	

<i>Brought forward</i>	\$35,428.36	
General Plant Supplies.....	606.44	
Office Equipment	7.40	
General Plant Equipment.....	654.66	
General Plant Materials.....	229.28	
Repairs	327.92	
Lighting	757.38	
Expressage and deliveries.....	168.18	
Telephone service	132.35	
Contingencies	57.96	
Coal	7,547.30	\$45,917.23

ROBERT SUTCLIFFE,
Clerk.
January 14, 1920.

PERCY R. PYNE,
Treasurer.

Endowment Fund

Schedule 8.

Funds as of December 31, 1918:

Investments at cost.....	\$370,701.25	
Less overdraft on investments.....	369.29	\$370,331.96

RECEIPTS.

Special Subscriptions:

John D. Rockefeller, Jr.	\$10,000.00	
George D. Pratt.....	10,000.00	
Abram G. Nesbitt.....	5,000.00	\$25,000.00

Life Memberships		3,300.50
		<u>\$398,632.46</u>

Investments as of December 31, 1919, at cost:

\$20,000 Westchester Racing Association 5½% First Mortgage Bonds.....	\$20,000.00	
3,000 Second Mortgage, Clara N. Gibert and others, 6% over land and buildings, Broadway and 17th Street.....	3,000.00	
5,000 Colorado & Southern 4% Bonds.....	4,750.00	
5,000 Michigan Central R.R. Co. 4% Bonds...	4,950.00	
10,000 New York City 1957 4% Corporate Stock	9,925.00	
10,000 New York City 1957 4% Corporate Stock	9,962.50	
20,000 New York City 1958 4% Corporate Stock	19,875.00	
10,000 New York City 1958 4% Corporate Stock	9,962.50	
13,400 New York City 1965 4½% Corporate Stock	13,651.25	
10,000 St. Paul, Minneapolis & Manitoba 4% Bonds	9,800.00	
50,000 U. S. Steel Sinking Fund 5% Bonds.....	51,812.50	
50,000 American Telephone & Telegraph 4% Bonds	45,000.00	
25,000 Rhode Island Suburban Ry. Co. 4% Bonds	21,250.00	
20,000 Chicago & Northwestern Ry. Co. 4% Bonds, General Mortgage.....	19,750.00	
20,000 Vandalia Railroad Co. Consolidated Mortgage 4% Bonds.....	19,400.00	

Carried forward

	<u>\$263,088.75</u>	
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<i>Brought forward</i>		\$263,088.75	
5,000 Missouri & Illinois Bridge & Belt R.R. Co. 1st Mortgage 4% Bonds.....		5,000.00	
10,000 Chicago, Milwaukee & Puget Sound 1st Mortgage 4% Bonds.....		9,525.00	
12,000 Chicago, Milwaukee & Puget Sound 1st Mortgage 4% Bonds.....		11,250.00	
9,000 New York, Lackawanna & Western 4% Terminal Improvement Bonds.....		8,910.00	
20,000 Milwaukee, Sparta & Northwestern 1st Mortgage 4% Bonds.....		18,900.00	
25,000 New York & Westchester Lighting Co. General Mortgage 4% Gold Coupon Bonds		19,750.00	
1,000 Morris & Essex R. R. 3½% Bond.....		876.25	
5,000 Illinois Central and Chicago, St. Louis & New Orleans 5% Bonds.....		5,000.00	
9,000 Baltimore & Ohio (Pittsburgh, Lake Erie & West Virginia) Ry. 4% Refunding Bonds		7,920.00	
9,000 Lehigh Valley Terminal 5% Bonds.....		9,090.00	
3,000 Central Railroad of New Jersey 5% Bonds		3,031.25	
7,000 United New Jersey R.R. & Canal 4% Bonds		6,230.00	
4,000 Baltimore & Ohio 1st Mortgage 4% Bonds		3,120.00	\$371,691.25
			<hr/>
Uninvested balance as of December 31, 1919....			26,941.21
			<hr/>
			\$398,632.46

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Endowment Fund Income Account

Schedule 9.

RECEIPTS.

Interest collected from Endowment Fund investments.....	\$16,168.00
	<hr/>
	\$16,168.00

EXPENDITURES.

Transferred to Income Account.....	\$16,168.00
	<hr/>
	\$16,168.00

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Cadwalader Animal Fund

Schedule 10.

Unexpended balance as of December 31, 1918:		
Cash in bank.....	\$1,775.00	
Investment: \$20,000 (at par) Illinois Central and Chicago, St. Louis & New Orleans joint 5% Bonds.....	20,000.00	\$21,775.00

RECEIPTS.

Interest on investment.....		1,000.00
		<u>\$22,775.00</u>

EXPENDITURES.

Expenses account Belgian Gift.....		1,829.47
Unexpended balance as of December 31, 1919:		
Investment: \$20,000 (at par) Illinois Central and Chicago, St. Louis & New Orleans joint 5% Bonds.....	20,000.00	
Cash in bank	945.53	20,945.53
		<u>\$22,775.00</u>

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Wild Life Fund

Schedule 11.

Unexpended balance as of December 31, 1918.....	\$930.07
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RECEIPTS.

Sale of "Our Vanishing Wild Life".....	53.00
	<u>\$983.07</u>

EXPENDITURES.

Telegraph and express.....	1.76
Unexpended balance as of December 31, 1919.....	981.31
	<u>\$983.07</u>

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Improvement and Repair Account

Schedule 12.

Unexpended balance as of December 31, 1918.....	\$6,221.50
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RECEIPTS.

Gate Receipts	11,577.20
	<u>\$17,798.70</u>

EXPENDITURES.

Miscellaneous	\$695.50	
Blackbird cages	764.07	
Cranes' paddock	473.61	
Guard fence at Elephant House.....	264.78	
Guard rails	988.38	
Children's playground	454.46	
Walk repairs	1,111.38	
Lion House ceiling.....	165.66	4,917.84

Unexpended balance as of December 31, 1919.... 12,880.86

\$17,798.70

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Carnegie Pension Fund

Schedule 13.

Funds as of December 31, 1918:		
Investments at cost.....		\$100,066.25
Funds as of December 31, 1919:		
Investments at cost:		
\$25,000 Philadelphia & Baltimore 1st Mortgage 4% Gold Bonds.....	\$23,250.00	
25,000 Lehigh Coal & Navigation 4½% Bonds..	24,875.00	
25,000 Illinois Central 4% Bonds.....	23,062.50	
5,000 Morris & Essex 3½% Bonds.....	4,373.75	
25,000 Chicago & Northwestern 4% Bonds.....	23,687.50	
1,000 Michigan Central 3½% Bond.....	817.50	\$100,066.25

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Pension Fund Income Account

Schedule 14.

Uninvested balance as of December 31, 1918:		
Deposited with Farmers' Loan & Trust Co.	\$4,002.32	
Deposited with Corn Exchange Bank (Bronx)	233.85	\$4,236.17
Investments at cost		44,262.50

RECEIPTS.

Interest on bank balances.....		\$109.41
Interest on bond investments.....		2,244.29
Dues collected from Zoological Society Employees.....		3,068.50
Miscellaneous collections		5.00
Contributed by New York Zoological Society:		
Interest on Carnegie Pension Fund Invest- ments	\$4,335.00	
Cash payments, year 1919.....	3,665.00	8,000.00
		\$61,925.87

EXPENDITURES.

Refund of dues with accrued interest to resigning members	\$1,324.52	
Pension payments	1,738.80	
Clerical services	250.00	
Declining insurance	673.00	
Physical examinations (made by Dr. G. J. Van der Smissen)	95.00	4,081.32
<hr/>		
Investments at cost:		
\$5,000 New York City 4½% Bonds.....	\$5,093.75	
5,000 Illinois Central & Chicago, St. Louis & New Orleans Ry. joint 5% Bonds....	4,981.25	
5,000 Milwaukee, Sault Sainte Marie & Atlantic Ry. first 4% Bonds.....	4,868.75	
4,000 Baltimore & Ohio (Pittsburgh, Lake Erie & West Virginia) Ry. 4% Refunding Bonds	3,520.00	
5,000 Twenty-third Street Improvement & Refunding 5% Bonds.....	4,825.00	
6,000 United New Jersey Ry. & Canal 4% 1923 Bonds	5,925.00	
5,000 U. S. Government Second Loan 4% Liberty Bonds	5,000.00	
6,000 Baltimore & Ohio Ry. 1st Mortgage 1948 4% Bonds	4,680.00	
7,000 Chicago, Milwaukee & St. Paul 4½% Bonds	5,368.75	
*5,000 U. S. Government Second Loan 4½% Converted Liberty Bonds.....	4,710.00	48,972.50
<hr/>		
Uninvested balance as of December 31, 1919:		
Deposited with Farmers' Loan & Trust Co. .	\$8,633.02	
Deposited with Corn Exchange Bank (Bronx)	239.03	8,872.05
<hr/>		
		\$61,925.87

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

*Purchased during 1919.

Tropical Research Fund

Schedule 15.

Unexpended balance as of December 31, 1918..... \$4,409.19

RECEIPTS.

Special Subscriptions:

Geo. J. Gould	\$1,000.00	
Mortimer L. Schiff	500.00	
Cleveland H. Dodge	500.00	
American Museum Natural History.....	800.00	2,800.00
<hr/>		
		\$7,209.19

EXPENDITURES.

Salary of directing curator and assistant.....	\$2,994.99	
Miscellaneous expenses	3,790.55	
Travelling and other expenses.....	270.00	\$7,055.54

Unexpended balance as of December 31, 1919.... 153.65

\$7,209.19

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Art Gallery Fund

Schedule 16.

Unexpended balance as of December 31, 1918..... \$7,421.68

RECEIPTS.

Special Subscriptions:

Estate of Frederick G. Bourne.....	\$250.00	
Henry M. Tilford	750.00	1,000.00

\$8,421.68

EXPENDITURES.

Oil paintings

Unexpended balance as of December 31, 1919..... \$1,200.00
7,221.68

\$8,421.68

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Publication Fund

Schedule 17.

Unexpended balance as of December 31, 1918..... \$1,597.53

RECEIPTS.

Sale of "Tropical Wild Life in British Guiana"..... 112.75

\$1,710.28

EXPENDITURES.

Express and other charges..... \$3.00

Unexpended balance as of December 31, 1919..... 1,707.28

\$1,710.28

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Heads and Horns Building Fund

Schedule 18.

Unexpended balance as of December 31, 1918:

Investments at cost.....	\$80,360.57	
Cash in bank	1,388.05	\$81,748.62

RECEIPTS.

Interest on investments

2,827.18
\$84,575.80

Funds as of December 31, 1919:

Investments at cost:

\$79,000 U. S. Government 3½% Liberty Bonds..	\$78,912.81	
1,500 U. S. Government 4¼% Liberty Bonds..	1,447.76	\$80,360.57

Uninvested balance as of December 31, 1919.....		4,215.23
		<u>\$84,575.80</u>

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Special Maintenance Fund, 1919

Schedule 19.

Unexpended balance as of December 31, 1918.....	\$5,700.00
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RECEIPTS.

Special Subscriptions:

Geo. J. Gould	\$1,000.00	
Wm. Pierson Hamilton	1,000.00	
Emerson McMillan	1,000.00	
Ogden Mills	1,000.00	
Cleveland H. Dodge	1,000.00	
E. C. Converse	1,000.00	
Percy A. Rockefeller	1,000.00	
Mortimer L. Schiff	1,000.00	
Henry M. Tilford	500.00	
Edwin Thorn	500.00	
Lispenard Stewart	500.00	
Geo. C. Clark	250.00	
Income Account (transfer).....	1,000.00	\$10,750.00

\$16,450.00

EXPENDITURES.

Salary Bonuses	\$4,247.67	
City Fund (transfer).....	12,202.33	\$16,450.00

H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

Pheasant Aviary Fund

Schedule 20.

Unexpended balance as of December 31, 1918.....	\$93.21
No receipts during 1919.	

EXPENDITURES.

Income Account (transfer).....	\$93.21
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H. R. MITCHELL,
Chief Clerk.
January 1, 1920.

PERCY R. PYNE,
Treasurer.

MARWICK, MITCHELL & CO.

ACCOUNTANTS AND AUDITORS

79 WALL STREET

NEW YORK

Auditors' Certificate

We have audited the books and accounts of the New York Zoological Society, and of the "Carnegie Fund" for the year ending December 31, 1919, and certify that the foregoing Schedules "1" to "22" are in accordance with the books, and correctly record the transactions relating to the funds of the Society and the "Carnegie Pension Fund" for the year 1919, and the condition of the other Funds as at December 31, 1919.

The subscriptions, donations and dues reported as received and the income from investments, have been properly accounted for, and the securities and cash on hand at December 31, 1919, as shown in the accounts of the Funds presented herewith, have been checked and found in order. Satisfactory vouchers have been produced for all expenditures.

MARWICK, MITCHELL, PEAT & Co.,
Chartered Accountants.

79 Wall Street, New York.
March 17, 1920.

Report of the Auditing Committee

OF THE

NEW YORK ZOOLOGICAL SOCIETY

To the Presidents and Board of Managers
of the New York Zoological Society:

Dear Sirs:

We beg to report we have examined the annual audit of the books and accounts of the New York Zoological Society for the year ending December 31, 1919, as made by Messrs. Marwick, Mitchell & Company, Chartered Accountants, and herewith submit the same to you as a complete and satisfactory audit of said books and accounts, including the Carnegie Pension Fund and the Pension Fund and the Pension Fund Income Account, all expenditures and receipts of the various accounts being clearly set forth, and it appearing that the cash on hand and at the various depositories has been verified and found correct, and all securities in which the funds of the Society are invested have been examined and found as reported.

Expenditures made through the Park Department of the City of New York have not been verified by this audit as such moneys have not passed through the hands of this Society, but are in due course checked and verified by the Comptroller of the City.

Respectfully submitted,

W. W. NILES, *Chairman,*
LISPENARD STEWART,
ANTHONY R. KUSER.

List of Accessions, 1919
BY THE ZOOLOGICAL SOCIETY
AT THE ZOOLOGICAL PARK.

BY GIFT.

- APGAR, W. B., Ithaca, N. Y.:
Great Horned Owls (2 specimens).
- BACKSTORM, JOHN, Brooklyn, N. Y.:
Cotton-Headed Marmoset.
- BAKER, MRS. ELIZABETH R., New York City:
Gray Parrots (2 specimens).
- BEATTY, JOHN, Milboro, Va.:
Great Horned Owl.
- BEECHER, LYMAN, New York City:
2 Painted Turtles, 1 Chipmunk.
- BEERBAUM, WILLIAM F., Waterbury, Conn.:
Hog-Nosed Snake.
- BERG, C. C., Newark, N. J.:
Green Monkey.
- BEYER, F. R., New York City:
Yellow-Fronted Amazon.
- BLACKBURN, S. P., & Co., New York City:
Black-Faced Kangaroo.
- BLACKINTON, ROBERT L., Providence, R. I.:
Box Tortoises (2 specimens).
- BLUE MOUNTAIN FOREST ASSOCIATION, Newport, N. H.:
American Bison (2 specimens).
- BOPP, MISS ELEANOR, Holbrook, N. Y.:
Screech Owls (3 specimens).
- BROOKS, MISS MARY E., New York City:
Canary.
- BROUN, MASTER L. COLEMAN, Hartwood, N. Y.:
3 Water Snakes, 4 Garter Snakes, 1 Milk Snake, 1 Black Snake. Total,
9 specimens.
- BROWN, MRS. W., Hackensack, N. J.:
Marmoset.
- BROWN, WILLIAM E., New York City:
Canaries (4 specimens).
- BUCKMASTER, LIEUT. COMMANDER, U. S. S. *Tacoma*, New York City:
Chilian Sea Eagles (2 specimens).
- CARR, MRS. H. C., New York City:
1 Brazilian Troupial, 1 Orange-Backed Troupial.
- CARTIER, MRS. LOUIS P., New York City:
2 Snowy Egrets, 1 Wood Rail, 1 Lizard. Total, 4 specimens.
- CHASE, MRS. F. H., Darien, Conn.:
2 Strawberry Finches, 1 Orange-Cheeked Waxbill.

- CHAZSKWSKY, JOHN, New York City:
Centipedes (2 specimens).
- CLARK & HUTCHEON, New York City:
Rat-Tailed Opossum, with 6 young.
- COLLINS, MRS. S. C., New York City:
Yellow-Fronted Amazon.
- COLMAN, MRS. R., New York City:
Cotton-Headed Marmoset.
- CREW OF THE U. S. S. *Susquehanna*, New York City:
Red Fox.
- CULP, F. P., Allentown, Pa.:
Marbled Salamander.
- DAVIES, MISS A. B., New York City:
Horned Toads (8 specimens).
- DETJENS, JOHN, Stapleton, N. Y.:
4 Silver Pheasants, 2 Golden Pheasants, 1 Ring-Neck Pheasant, 1
Pheasant-Fowl Pheasant. Total, 8 specimens.
- DICKINSON, H. B., St. Albans, Vt.:
Alligator.
- DITMARS, CHARLES ALLEN, Brooklyn, N. Y.:
Tegu.
- DOUGHTY, W. F., Gauley Mills, W. Va.:
Banded Rattlesnake.
- DOXTADER, E. A., Asbury Park, N. J.:
Texas Gopher Snake.
- DUNN, ROBERT LEE, Hollis, L. I.:
Marmoset.
- ELLIOTT, JOHN, AND MISS LILLIAN, New York City:
White-Nosed Coati Mundi.
- ELTON BOYS BRIGADE, New York City:
2 Painted Turtles, 2 Pilot Blacksnakes.
- ERCOLANO, A., New York City:
Black-Crowned Night Heron.
- EVANS, LLOYD, Ravendale, Calif.:
Canada Porcupine.
- EVERSON, H. B., Flushing, L. I.:
Scarlet Snake.
- FARRINGTON, F., New York City:
Alligator.
- FAY, JOHN T., New York City:
Alligators (3 specimens).
- FERDER, MICHAEL, Brooklyn, N. Y.:
Blue-Fronted Amazon.
- FISHLOCK, W. C., New York City:
1 Golden Agouti, 1 Tortoise.
- GABLER, FRANK M., New York City:
Horned Owl.
- GEORGE, W. R. O., New York City:
Matamata Turtle.
- GILLAM, ARTHUR L., Flushing, L. I.:
2 Timber Rattlesnakes, 16 Garter Snakes, 4 DeKay's Snakes, 3 Copper-
head Snakes, 2 Water Snakes, 5 Banded Rattlesnakes, 5 Black
Snakes. Total, 37 specimens.
- GIONOCCHIO, H., New York City:
Pilot Black Snake.

- GOLD, G., New York City:
Screech Owl.
- GRANT, F. H., Red Bank, N. J.:
Great Horned Owl.
- GRANT, MRS. U. S., New York City:
White-Winged Parrakeet.
- GRIFFITH, F., Belmar, N. J.:
2 Box Turtles.
- GRILLET, V. A., Philadelphia, Pa.:
7 Spotted Turtles, 2 Muhlenberg's Turtles, 4 Painted Turtles, 1 Snapping Turtle. Total, 14 specimens.
- GRUSS, MISS CATHERINE, Brooklyn, N. Y.:
18 Garter Snakes, 2 Milk Snakes, 3 Ribbon Snakes, 5 Ring-Necked Snakes, 2 DeKay's Snakes. Total, 30 specimens.
- HAHNEL, ARTHUR P., West Hoboken, N. J.:
Garter Snakes (60 specimens).
- HAMMERSTEIN, MRS. OSCAR, New York City:
Tovi Parrakeet.
- HARVEY, MISS I. E., New Rochelle, N. Y.:
Lesser Sulphur-Crested Cockatoo.
- HATTON, E., Hillsdale, N. J.:
Box Tortoise.
- HENDERSON, R. A., Weehawken, N. J.:
Yellow-Headed Amazon.
- HILDER, G. HOWARD, Homestead, Fla.:
Diamond-Back Rattlesnake.
- HILL, MRS. PERCIVAL S., Greenwich, Conn.:
Canary.
- HOFF, J. N., Alphano, N. J.:
Black Woodchuck.
- HOFMAN, MRS. C., New York City:
Blue-Headed Parrot.
- HOHNER, MRS. T., New York City:
Barred Owl.
- HOLLANDER, MRS. C. S., New York City:
Jeffroy Marmoset.
- HOUDINI, HARRY, New York City:
Sennett White-Tailed Hawk.
- HOUSE, MASTER E. O., Bridgehampton, L. I.:
Snapping Turtle.
- HOYT, FRANK, Yonkers, N. Y.:
Weasel.
- HUDSON, MRS. FANNIE, Mt. Vernon, N. Y.:
Barred Doves (2 specimens).
- HUGHES, MISS EDNA, Brooklyn, N. Y.:
Gray-Breasted Parrakeet.
- IBBEKEN, A. G., New York City:
Duck Hawk.
- KALBFLEISCH CORPORATION, Brooklyn, N. Y.:
Bull Snake.
- KARALAMBO, CHRISTY, New York City:
Box Tortoise.
- KIRSTEN, GEORGE, Palisades Park, N. J.:
Screech Owls (2 specimens).
- KLUGE, MRS. AUGUST, Brooklyn, N. Y.:
1 Raccoon, 2 Strawberry Finches.

- KNAP, J. DAY, New York City:
Opossums (4 specimens).
- KNIGHT, JOHN, New York City:
Sora Rail.
- KUMHART, MRS. H. R., New York City:
Red Siskin.
- LANDISMAN, MORRIS, New York City:
Sparrow Hawk.
- LANE, MRS. B., New York City:
Screech Owl.
- LAVELLE, MISS ANNIE E., New York City:
Box Tortoise.
- LEAYCROFT, H. L., New York City:
Saw-Whet Owl.
- LEDOGAR, FRANK, New York City:
Barn Owl.
- LESKINER, FRANK, Brooklyn, N. Y.:
Variable Squirrel.
- LEWIS, MASTER ROBERT S., New York City:
Alligator.
- LOOT, HARRY H., Richmond Hill, L. I.:
Red Fox.
- LOUMERT, JOSEPH, New York City:
Milk Snakes (2 specimens).
- LYBOLT, CHARLES, New York City:
Coati Mundi.
- MCGRATH, THOMAS F., New York City:
Iguanas (2 specimens).
- MAHONEY, JOHN, Yonkers, N. Y.:
Screech Owl.
- MALONEY, MISS E., New York City:
Sparrow Hawk.
- MECCA TEMPLE, A. A. O. N. M. S., New York City:
1 White-Faced Sapajou Monkey, 2 Bull Snakes, 1 Raccoon, 1 Alligator,
1 Lynx. Total, 6 specimens.
- MESSNER, HAROLD, New York City:
Short-Eared Owl.
- MILLER, E., New York City:
Peacock.
- MILLER, W., New York City:
Barred Owl.
- MILLET, MISS MADELINE, New York City:
Green Monkey.
- MOODY, LIEUT. A. S., Rutherford, N. J.:
1 Diamond-Back Rattlesnake, 1 Water Moccasin, 1 Hog-Nosed Snake.
Total, 3 specimens.
- MOON, LIEUT. DONALD P., Brooklyn, N. Y.:
African Chameleon.
- MOULTON, MRS. A. J., East Orange, N. J.:
6 Silver Pheasants, 20 Golden Pheasants, 1 Ring-Neck Pheasant, 1 Hy-
brid Golden-Ring-Neck Pheasant, 9 Fantail Pigeons, 2 Jacobin
Pigeons, 1 Sulphur-Breasted Toucan, 1 White-Headed Jay-Thrush,
5 Red-Headed Cardinals, 5 Painted Buntings, 1 Orange Weaver,
3 Canaries, 1 Chestnut-Headed Bunting, 3 Chaffinches, 1 Conbasou,
1 Greenfinch, 1 Gray Java Sparrow, 1 White Java Sparrow, 1 Saf-
fron Finch, 1 Paradise Whydah. Total, 65 specimens.

- NEW YORK AQUARIUM, New York City:
 1 South American Tortoise, 2 Box Tortoises.
- NICHOLSON, MISS AUGUSTINE, New York City:
 Red-Tailed Hawk.
- PAINTER, KENYON V., Cleveland, Ohio:
 1 Black-Tailed Parrakeet, 1 Red-Billed Pigeon, 2 Bare-Eyed Pigeons.
 Total, 4 specimens.
- PARDEE, MRS. RITA, Philadelphia, Pa.:
 Alligator.
- PARKER, HENRY C., New York City:
 Virginia Opossum.
- PARSONS, ROBERT C., Elizabeth, N. J.:
 Mink.
- POPE, CLIFFORD H., New York City.:
 12 Water Snakes, 1 Black Snake.
- POPIEL, BRONISLAS, New York City:
 Cuban Turtle.
- POWERS, DR. LILLIAN DELGER, White Plains, N. Y.:
 Black Ground Squirrels (2 specimens).
- PRIOR, ERNEST L., New York City:
 Raccoons (2 specimens).
- REDINGTON, JOHN H., Brooklyn, N. Y.:
 2 Banded Rattlesnakes, 1 Garter Snake, 1 Red-Bellied Snake, 6 Red
 Newts, 1 Salamander. Total, 11 specimens.
- RING, CAPTAIN GEORGE, New York City:
 Purple Gallinules (2 specimens).
- ROGGE, H., New York City:
 Goldfinch-Canary Hybrid.
- ROONEY, MISS PAULINE, New York City:
 Yellow-Headed Amazon.
- RUMAK, MRS. J., New York City:
 Red-Crested Cardinal.
- RYERSON, MRS. LAURA, Passaic, N. J.:
 Roseate Cockatoos (2 specimens).
- SARGANT, MISS MARGARET, New York City:
 Mustache Monkey.
- SATTERLEE, MISS MABEL, New York City:
 Green Monkey.
- SCHULZE, OTTO REDO, New York City:
 Opossum.
- SCHUMACHER, MRS. THEODORE, New York City:
 Alligator.
- SCOTT, A. D., New York City:
 Box Tortoise.
- SIMONIS, CONRAD, New York City:
 European Kite.
- SMITH, GEORGE, New York City:
 1 Red-Headed Lizard, 1 Ringed Boa.
- SNYDER, PAUL W., Bloomfield, N. J.:
 17 Painted Turtles, 1 Red Garter Snake.
- SPENCE, MISS CLARA, New York City:
 1 Purple Sugarbird, 1 Blue Sugarbird.
- STENGEL, WALTER, New York City:
 Wood Turtle.
- STONE, E. COOPER, Glen Ridge, N. J.:
 Box Tortoises (7 specimens).

- TABENHOUSE, BENJAMIN, New York City:
Banded Rattlesnakes (2 specimens).
- TAYLOR, JOHN M., New York City:
Milk Snake.
- THIES, C. E., Hoboken, N. J.:
White Java Sparrow.
- THOMPSON, MRS. FREDERICK FERRIS, Canandaigua, N. Y.:
Red Jungle Fowl (2 specimens).
- TIMOLAT, J. J., Red Bank, N. J.:
Opossum.
- TINNAN, MRS., Brooklyn, N. Y.:
Raccoon.
- UNGER, CORPORAL CHARLES, Harrison, N. Y.:
Crab-Eating Raccoon.
- U. S. S. "TACOMA," THROUGH LIEUT. BUCKMASTER, New York City:
Chilian Sea Eagles (2 specimens).
- VALENTINE, MISS ANN P., New York City:
Ring-Tailed Monkey.
- VAN HORN, MRS. J., New York City:
Yellow-Headed Amazon.
- VAN NESS, M. E., Newark, N. J.:
Green Monkey.
- VOLLERVENS, CAPTAIN Y., Amsterdam, Holland:
Muntjac.
- VON DUZER, A. H., New York City:
Opossums (4 specimens).
- WACK, GEORGE J., Wellsville, N. Y.:
Great Horned Owl.
- WALKER, JOHN, Mount Vernon, N. Y.:
Alligator.
- WEIL, JOSEPH, New York City:
Guatamalan Amazon Parrot.
- WILCOX, H. H., New York City:
Painted Turtles (4 specimens).
- WILLIAMS, ALEXANDER S., Steinway, L. I.:
2 Spot-Nosed Monkeys, 1 Sooty Mangabey.
- WOODWARD, KENNETH, New York City:
1 Red-Headed Cardinal, 1 Red-Crested Cardinal, 1 Troupial, 1 Cockateel, 2 Black-Cheeked Lovebirds, 1 Peach-Faced Lovebird, 1 Gray-Headed Lovebird, 1 Pygmy Parrotet, 1 Grass Parrakeet, 1 Mexican Ground Dove, 1 Russ Weaver, 1 Orange Weaver, 1 Half-Marked Weaver, 1 Madagascar Weaver, 2 Saffron Finches. Total, 17 specimens.
- YEARANCE, CHESTER, Hackensack, N. J.:
Alligator.
- ZEDE, GEORGES MARTIN, Anticosti Island, Quebec:
Black Bear.
- ZOOLOGICAL GARDEN OF ANTWERP, Antwerp, Belgium:
Homing Pigeons (2 specimens).

Library

BY GIFT.

- PAUL, JOHN JAY, Watertown, Fla.:
A Monograph of the Trochilidæ, by John Gould. 6 Vols. Folio.
The Fur Hunter of the Far West, by Alexander Ross. 2 Vols.

- Adventures on the Oregon River, by Alexander Ross.
 The Red River Settlement, by Alexander Ross.
 Canadian Red River Exploring Expedition, by Henry Y. Hind. 2 Vols.
 Wilderness of the North Pacific Coast Islands, by Charles Sheldon.
 In Africa, by John T. McCutcheon.
 Wild Sports of Southern Africa, by William C. Harris.
 Lake Superior, by Louis Agassiz.
 Mammals of South Africa, by W. L. Sclater. 2 Vols.
 Narrative of a Journey to the Polar Sea, by Sir John Franklin.
 Second Expedition to the Polar Sea, by Sir John Franklin.
 Narrative of a Voyage to the Pacific and Beering's Strait, by Frederick
 W. Beechey.
 Romance of the Newfoundland Caribou, by Arthur R. Dugmore.
 Fragments of the Natural History of Pennsylvania, by Benjamin Smith
 Barton.
 Natural History of Carolina, Florida and the Bahamas, by Mark Cates-
 by. 2 Vols. Folio.
 Game Fishes of the United States, by George Brown Goode. Folio.

STEWART, LISPENARD, New York City:

- Birds of New York, by Elon Howard Eaton. 2 Vols.

National Collection of Heads and Horns

BY GIFT.

CROSS, W. REDMOND, New York City:

- Mountain Goat (*Oreamnos montanus*). Pair of Mounted Heads.

DE RHAM, MRS. H. CASIMIR, Newport, R. I.:

- Prong-Horned Antelope (*Antilocapra americanus*). Pair of Mounted
 Heads.

Elk (*Cervus canadensis*). Pair of Mounted Heads.

Mountain Sheep (*Ovis canadensis*). Mounted Head.

Black Bear (*Ursus americanus*). Mounted Head.

HOEY, WILLIAM, New York City:

- Columbian Black-Tailed Deer (*Odocoileus columbianus*). Mounted
 Head.

LAWRENCE, TOWNSEND, New York City:

- European Red Deer (*Cervus elaphus*). Antlers.

RUNGIUS, CARL, New York City:

- Fannin's Mountain Sheep (*Ovis fannini*). Mounted Head.

BY PURCHASE.

Prong-Horned Antelope (*Antilocapra americanus*). Pair of Mounted Heads.

Philippine Water Buffalo (*Bos bubalis*). Skull and Horns.

Plants

BY GIFT.

WISSMANN, F. DER., New York City:

- 4 Bay Trees.

AT THE AQUARIUM

BY GIFT.

- ASCHE, MR. H. S., Brooklyn, N. Y.:
Young Alligator.
- BAER, MR. JOSEPH, New York City:
Painted Turtle.
- BANFIELD, MASTER CARROL, Rutherford, N. J.:
Spotted Turtle.
- BENJAMIN, MASTER GILBERT S., Rutherford, N. J.:
Painted Turtles (6 specimens), Spotted Turtles (4 specimens), Snapping Turtle, Mud Turtle, Musk Turtle.
- BENJAMIN, MASTER TED, Rutherford, N. J.:
Snapping Turtle.
- BERLE, MR. A. E., New York City:
Young Alligators (2 specimens).
- CLARK, MR. THOMAS SHIELDS, Lenox, N. Y.:
Eggs of Loggerhead Turtle (21).
- CEASER, MR. A., Jersey City, N. J.:
Young Alligator.
- CODDINGTON, MR. JOHN J., New York City:
Diamond-Backed Terrapin.
- COOPER, MRS. GARRETT D., Suffern, N. Y.:
Reeves Turtle.
- DARE, MR. H. CRAIG, Brooklyn, N. Y.:
Painted Turtles (2 specimens).
- DECKERT, MR. R., New York City:
Red Efts (16 specimens).
- DORN, MR. RICHARD, New York City:
Indian Catfishes (3 specimens), Sunfishes (4 specimens), Chub-Suckers (6 specimens).
- FRANCIS, MISS MARGUERITE A., Brooklyn, N. Y.:
Young Alligator.
- GOLDFOGLE, MR. AND MRS. ALEXANDER, New York City:
Painted Turtle.
- GRANT, CAPT. CHAPMAN, Oklahoma City, Okla.:
California Newts (17 specimens), Fresh-Water Crayfish and Oregon Crayfishes (3 specimens).
- GULLAND, ENSIGN LOUIS, New Orleans, La.:
Young Alligator.
- GURGER, MR. A., Brooklyn, N. Y.:
Young Alligator.
- HASOWSKI, MR. FELIX, Brooklyn, N. Y.:
Wood Turtle.
- HATTON, MR. E. XAVIER, Hillsdale, N. J.:
Box Tortoise.
- HERZENBERG, MR. CHARLES, New York City:
Young Alligator.
- HILDEBRAND, MISS PHOEBE, Brooklyn, N. Y.:
Young Alligator.

- HOROWITZ, MR. MORRIS, Brooklyn, N. Y.:
Horseshoe Crab.
- JAEGER, MISS MARIE, New York City:
Young Alligator.
- KAHN, MRS. ESTELLA, New York City:
Model showing the Anatomy of the fish.
- KIRK, MISS BRENDA, Brooklyn, N. Y.:
Chameleon.
- LEE, MR. C. N., New York City:
Yellow-Bellied Terrapin (2 specimens), Young Alligators (2 specimens), and Cumberland Terrapin.
- LOHMAN, MR. JOHN, Astoria, L. I.:
Young Alligator.
- LUCKINGS, MISS MARGARET, New York City:
Chameleon.
- MCLEES, MR. FRANK, Rutherford, N. J.:
Water Snakes (20 specimens), Pickerel Frogs (7 specimens), Young Alligators (6 specimens), and Wood Turtle.
- MACDONALD, MR. JOHN, New York City:
Harbor Seal.
- MARSHALL, MR. P. N., New York City:
Young Alligator.
- MATTERSON, MRS. E. C., New York City:
Young Alligator.
- MULLER, MR. FRED, JR., Park Lane, L. I.:
Young Alligator.
- NAFT, MR. STEPHEN, New York City:
Young Alligator.
- NEWMAN, MASTER LESLIE H., Ridgefield, N. J.:
Young Alligator.
- NEW YORK CONSERVATION COMMISSION, Albany, N. Y.:
Great Lake Trout (12 specimens), and Albino Great Lake Trout (12 specimens).
- PARDÔE, DR. J. B., Bound Brook, N. J.:
Musk Turtles (53 specimens), Mud Turtles (50 specimens), and Painted Turtles (29 specimens).
- PERLMAN, MR. ELI, Brooklyn, N. Y.:
Young Alligator.
- PRITCHARD, MR. LAWRENCE N., Staten Island, N. Y.:
Young Alligators (2 specimens).
- REYNOLDS, MR. R. J., Hoboken, N. J.:
Sticklebacks (2 specimens).
- ROGOFF, MISS LILY, New York City:
Box Tortoise.
- SAENGER, MR. A., Jamaica, L. I.:
Tadpoles (2 specimens).
- SCHEMMEL, MR. WILLIAM, Pleasant Plains, S. I.:
Green Turtle.

- SCHWARTZ, MR. J., New York City:
Box Turtle.
- SHARP, MASTER RICHARD W., Rutherford, N. J.:
Snapping Turtle.
- SMITH, CAPTAIN HARRY, Rockaway Beach, L. I.:
Orange Filefish.
- THRASHER, MR. JACK, Brooklyn, N. Y.:
Young Alligator.
- TITSWORTH, MR. EDWARD, Jersey City, N. J.:
Young Alligator.
- TROY, MR. THOMAS C., New York City:
Young Crocodile.
- VOGELSANG, MR. CHARLES, Weehawken, N. J.:
Wood Turtle.
- WALSH, MISS E. K., Brooklyn, N. Y.:
Young Alligator.
- WHITON, MR. HENRY, New York City:
Large Alligator Snapping Turtle.
Collection of Giant Gars.

PURCHASED BY THE SOCIETY

Fresh Water.—Slider Terrapin, 10; Crocodile, 1; Gopher Turtle, 1; Cabomba and Water Plants, 2,550 sprays.

Salt Water, Local.—Harbor Seals, 3; King Crabs, 60; Hawksbill Turtle, 1; Weakfish, 1; Herring, 5; Menhaden, 5; Whiting, 18; Blackfish, 56; Hake, 7; Lobsters, 3; Sculpins, 6; Spots, 57; Codfish, 1; Skate, 6; Striped Bass, 5; White Perch, 4; Dogfish, 4; Sturgeon, 1; Tom Cod, 9; Blue Crabs, 100.

Salt Water, Tropical.—Pigfish, 1; Pinfish, 1; White Bellies, 2; Green Moray, 2; Ocean Triggerfish, 2; Muttonfish, 6; Blue Angel, 96; Queen Triggerfish, 5; Butterfly-fish, 15; Shark Sucker, 4; Cowfish, 14; Blue-striped Grunt, 26; Golden Tail, 2; Yellow Grunt, 3; Sergeant Major, 18; Blue Parrot, 20 (2 varieties); Mud Parrot, 12; Slippery Dick, 2; Yellow Mackerel, 16; Neverbite, 3; Cavally, 2; Red Parrot, 3; Nurse Shark, 1; Black Angel, 47; Porgy (2 varieties), 5; Sandfish, 1; Sea Anemone, 6; Spiny Lobster, 29; Hermit Crab, 5; Stone Crab, 10; Blue Crab, 1; Red Hogfish, 4; Filefish, 10; Amberfish, 1; Beau Gregory, 16; Scorpion-fish, 1; Queen Angel, 13; Spanish Hogfish, 2; Spiny Boxfish, 2; Rock Hind, 10; Surgeon-fish, 22; Blue Tang, 1; Porkfish, 77; Sheepshead, 2; Spadefish, 13; Rainbow Parrot, 17; Salema, 4; Catfish, 3; Spot Snapper, 36; Nassau Grouper, 3; Red Grouper, 7; Margate Fish, 5; Southern Puffer, 2; Chubb, 6; Common Trigger, 9; Tom Tate, 2; Red Hind, 9; Gray Grunt, 13; Yellow Tail, 8; Gray Snapper, 2; Dog Snapper, 3; Graysby, 7; Yellow Tail Angel, 1; Gag, 3; Black Grouper, 3; Schoolmaster, 6; Scamp, 3; White Grunt, 44; French Angel, 1; Rosy-sided Parrot, 1; Harbor Parrot, 1.

SPECIMENS RECEIVED BY EXCHANGE.

DETROIT AQUARIUM, Belle Isle, Detroit, Mich.:
Goldfish, 43; Quillback, 2; Blue Catfish, 3; Suckers, 5; Rock Bass, 18; Sunfish, 7; Pike, 3; Mudfish, 5; Long-nosed Gar, 8; White Bass, 7; Mud Puppy, 6.

NEW JERSEY FISH AND GAME COMMISSION, Trenton, N. J.:

Yellow Perch, 235; Sunfish, 193; Pickerel, 23; Bullhead, 32; Small-mouthed Black Bass, 14; Large-mouthed Black Bass, 1; Chub Sucker, 1; Brook Trout, 14; Rainbow Trout, 8; Brown Trout, 6; Rock Bass, 11.

COLLECTED BY EMPLOYEES.

Fresh Water.—Pearl Roach, 7,388; Common Roach, 37; Goldfish, 54; Silverfish, 83; Catfish, 1; Crayfish, 451, and Sunfish, 534.

Salt Water.—Anemones, 1,000; Starfish, 56; Mussels, 2,000; Sea Lettuce, Eel Grass, *Soleria* and *Tubularia*. (Shrimps, Soft-shelled Clams and Mud Snails were collected in quantities.)

The specimens received during the year, as detailed in the foregoing list, total 13,002, of which 301 were donated, 1,097 purchased, and 11,604 collected by employes. In addition 2,517,000 fish eggs were received for the hatchery as follows:

DONATED BY U. S. BUREAU OF FISHERIES, Washington, D. C.:

2,000 Brook Trout eggs,
5,000 Rainbow Trout eggs,
1,000,000 Green Pike-Perch eggs,
1,000,000 Pike-Perch eggs, eyed,
10,000 Black-spotted Trout eggs.

DONATED BY N. Y. CONSERVATION COMMISSION, Albany, N. Y.:

500,000 Yellow Perch eggs.

The Aquarium Library

BY GIFT.

BIGELOW, DR. EDWARD F., Sound Beach, Conn.:

The Guide to Nature.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES, Brooklyn, N. Y.:

Annual Report, Museum News and Quarterly.

CALIFORNIA ACADEMY OF SCIENCE, San Francisco, Cal.:

Proceedings.

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CHARTER
OF THE
NEW YORK ZOOLOGICAL SOCIETY

CHAPTER 435, LAWS OF 1895.

AN ACT to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the city of New York.

As amended by Chapter 146 of the Laws of 1902; and by Chapter 240 of the Laws of 1910.

See Chapter 432 of the Laws of 1900.

See Chapter of the city of New York, Section 626 of the Laws of 1901.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Charles A. Dana, Oswald Ottendorfer, Andrew H. Green, William H. Webb, Henry H. Cook, Samuel D. Babcock, Charles R. Miller, George G. Haven, J. Hampden Robb, Frederick W. DeVoe, J. Seaver Page, Rush C. Hawkins, David James King, Wager Swayne, Charles A. Peabody, Jr., Charles E. Whitehead, Charles R. Flint, Samuel Parsons, Jr., Mornay Williams, Henry E. Gregory, Isaac W. Maclay, Isaac Rosenwald, Hugh N. Camp, Andrew D. Parker, Cornelius Van Cott, William F. Havemeyer, Frederick Shonnard, William W. Thompson, Alexander Hadden, Edward L. Owen, John H. Starin, Rush S. Huidekoper, William W. Goodrich, Albert H. Gallatin, Frederick S. Church, Edward C. Spitzka, Robert L. Niles, Madison Grant, C. Grant La Farge, William Van Valkenburg, and such other persons as may, under the provisions of its by-laws, become members of the corporation hereby created, are hereby created a body corporate and politic, by and under the name of New York Zoological Society.

SEC. 2. Said corporation shall have power to establish, maintain and control zoological parks, gardens, or other collections for the promotion of zoology and kindred subjects, and for the instruction and recreation of the people. Said corporation may collect, hold, and expend funds for zoological research and publication, for the protection of wild animal life, and for kindred purposes, and may promote, form, and co-operate with other associations with similar purposes, and may purchase, sell, or exchange animals, plants, and specimens appropriate to the objects for which it was created.

SEC. 3. The managers of said corporation shall have power to make and adopt by-laws for the management and government of its affairs and business, for the admission, suspension, and expulsion of its members, and for the terms and conditions of membership; to prescribe the number and mode of election of its officers; to define their duties; to provide for the safe-keeping of its property, and from time to time to alter and modify its By-laws.

SEC. 4. The affairs and business of said corporation shall be managed and controlled by a board of managers, the number of whom shall be prescribed by the by-laws. The first board of managers shall be divided by lot into three classes, equal in number, one of which classes shall hold office for one year, another for two years, and the other for three years; and all persons elected to be managers at any subsequent election shall hold office for three years, and until others are elected in their stead. There shall be a president, two vice-presidents, treasurer and secretary, to be elected by the board of managers annually, who shall hold office until others are elected in their stead. The first meeting under this act may be held at any time upon a notice of five days, signed by any five of the incorporators named in the first section of this act, fixing a time and place for such meeting, a copy whereof shall be mailed to each of said incorporators at his usual post-office address, and twelve of such incorporators shall be a quorum for the purpose of organization, adoption of by-laws, and election of officers. No manager of said corporation shall be interested, directly or indirectly, in any contract concerning its property or affairs.

SEC. 5. Said corporation may raise money by the issue of bonds, secured by a mortgage on any or all of its property not acquired from said city or state.

SEC. 6. Said corporation may take, purchase, and hold real and personal estate necessary for the purpose of its incorporation, and shall possess the general powers and be subject to the restrictions and liabilities prescribed in Article II of Chapter 23 of the Consolidated Laws, entitled "General Corporation Law," being chapter 28 of the Laws of 1909.

SEC. 7. The commissioners of the sinking fund of the said city are authorized in their discretion to allot, set apart, and appropriate for the use of said corporation, any of the lands belonging to said city north of One Hundred and Fifty-fifth Street, but not in the Central Park, and such appropriation may be revoked if, after the expiration of five years from the passage of the act, a zoological garden is not established thereon; said grounds thus set apart and appropriated shall be used or no purpose whatsoever except those aforesaid. As soon as any lands are set apart the Mayor of the said city of New York, and the President of the Department of Parks of said city, shall become and be *ex-officio* members of the board of managers of said corporation. If at any time the animals now composing the menagerie of Central Park shall be removed therefrom by the authorities having charge thereof, said authorities may make an arrangement with the incorporators named in this act or the corporation formed by them for leasing or sale of such animals to such incorporators or corporation, and said incorporators or corporation shall have a preference over any other person or corporation in respect thereto upon the same terms which said authorities could make with any such other person or corporation, or upon such other terms as to such authorities may seem proper, but nothing herein provided shall be construed as giving the commissioners of the Department of Public Parks authority to sell, lease, transfer, or in any other wise dispose of said animals or other property connected with or belonging to said menagerie.

SEC. 8. Admission to the said gardens shall be free to the public for at least four days, one of which shall be Sunday, in each week, subject to such rules and regulations as shall be prescribed by said corporation.

SEC. 9. This act shall take effect immediately.

AN ACT to amend chapter four hundred and thirty-five of the laws of eighteen hundred and ninety-five, entitled "An act to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the City of New York" in relation to real and other property.

Became a law May 26, 1917, with the approval of the Governor. Passed, three-fifths being present.

ACCEPTED BY THE CITY.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Chapter four hundred and thirty-five of the laws of eighteen hundred and ninety-five, entitled "An act to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the City of New York," as amended by chapter two hundred and forty of the laws of nineteen hundred and ten, is hereby further amended by adding thereto a new section to read as follows:

7-a. The board of estimate and apportionment in the City of New York may, in its discretion, set apart and appropriate upon such conditions as it may deem expedient for the extension and development of the work and objects of the said New York Zoological Society, the whole or any part of that portion of Bronx Park in the City of New York, lying to the south of Pelham avenue and Pelham parkway, for the use of the said New York Zoological Society, the said lands so to be appropriated to be described particularly in the order of the board of estimate and apportionment hereby authorized. The said board of estimate and apportionment may also, in its discretion at the time of setting apart and appropriating said lands or any part thereof to the New York Zoological Society, and annually thereafter, in addition to any sum or sums which it may have appropriated for the support and maintenance of the New York Zoological Park, appropriate to the use of said society, such sum or sums in its discretion for the care and maintenance of the additional lands that may be allotted to the said society under the authority hereby conferred, as it may deem best.

2. This act shall take effect immediately.

NEW YORK ZOOLOGICAL SOCIETY

AND THE

NEW YORK AQUARIUM

CHAPTER 441, LAWS OF 1902.

AN ACT to authorize a further appropriation to the New York Zoological Society for the support of the New York Aquarium.

As amended by Chapter 239 of the Laws of 1910.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Chapter four hundred and forty-one of the laws of nineteen hundred and two, entitled "An Act to authorize a further appropriation to the New York Zoological Society for the support of the New York Aquarium," is hereby amended to read as follows:

SECTION 1. The Board of Estimate and Apportionment of the City of New York may annually, in its discretion, include in the budget for the then next ensuing financial year, in addition to any sum or sums which may be appropriated for the adequate support and maintenance of the New York Zoological Park or gardens, situated in the borough of the Bronx, and administered and controlled by the New York Zoological Society, a further sum or sums, in its discretion, for the use of the said New York Zoological Society, provided, however, that the additional appropriation hereby authorized shall be made only in case an agreement is entered into between the said New York Zoological Society and the City of New York, acting by its Board of Estimate and Apportionment for the adequate keeping, maintenance, extension, preservation and exhibition of the building and approaches thereto and collection of aquatic animals and plants contained therein, known as the New York Aquarium, situated in the Battery Park in the Borough of Manhattan in said city, and also for furnishing opportunities for study, research and publication in connection with said collections, which contract the said Board of Estimate and Apportionment is hereby expressly authorized, in its discretion, to make upon such terms and conditions as may be agreed upon with the said New York Zoological Society, and which contract shall also provide how the duty of the commissioner of parks for the borough of Manhattan and Richmond in respect to maintaining the said aquarium now imposed upon him by law shall be performed.

SEC. 2. This act shall take effect immediately.

BY-LAWS
OF THE
NEW YORK ZOOLOGICAL SOCIETY

AMENDED TO JANUARY 21, 1914.

ARTICLE I.

MEETINGS OF THE SOCIETY.

SECTION 1. The office and place of business of the New York Zoological Society shall be in the City of New York, unless otherwise ordered.

SEC. 2. The Society shall hold its annual meeting for the election of Managers, and other business, on the second Tuesday of January, or such day thereafter during the month of January to which said annual meeting shall adjourn.

SEC. 3. Special meetings of the Society shall be called by the Secretary, upon the request of the President or the Chairman of the Executive Committee, or at the written request of ten members.

SEC. 4. Notices of all meetings shall be mailed to each member of the Society at least three days before such meeting.

SEC. 5. At meetings of the Society twenty members shall constitute a quorum.

SEC. 6. The order of business shall be as follows:

1. Roll Call.
2. Reading of minutes not previously read.
3. Report of Executive Committee.
4. Report of Secretary.
5. Report of Treasurer.
6. Report of the Director of the Zoological Park.
7. Report of Director of the Aquarium.
8. Election of Managers.
9. Communications.
10. Miscellaneous business.
11. Reports and resolutions.

ARTICLE II.

BOARD OF MANAGERS.

SEC. 1. The Board of Managers shall consist of thirty-six members, together with the Mayor of New York and President of the Park Board, or Commissioner for the Bronx, who shall be members *ex-officio* of the Board.

SEC. 2. Nineteen Managers shall constitute a quorum, but ten Managers may transact current business, and adjourn, subject to the subsequent approval of a meeting at which a quorum shall be present.

SEC. 3. The Board of Managers shall hold an annual meeting on the third Tuesday of January, or on such day thereafter to which said annual meeting shall adjourn. Regular meetings of the Board may also be called by the Secretary on the third Tuesdays of October and April upon the request of the President or Chairman of the Executive Committee. Special meetings of the Board shall be called at any time by the Secretary upon the request of the President or Chairman of the Executive Committee, or at the written request of five managers.

SEC. 4. Notices of meetings of the board shall be mailed to each Manager at least three days before such meetings.

SEC. 5. The successors to the outgoing class of Managers shall be elected by the Society at its annual meeting, but vacancies in the board may be filled for the unexpired term by the Board of Managers, or by the Executive Committee.

SEC. 6. A Nominating Committee shall be annually appointed by the Executive Committee, and shall consist of three members of the Society at large, who shall nominate and post ten days before the annual election the names of twelve persons to succeed the outgoing class of Managers in a conspicuous place in the office of the Society.

SEC. 7. No person shall be eligible for the election of the Board of Managers except to fill vacancies, unless his name shall have been posted as a candidate by such committee, or by not less than ten members, in writing, in a conspicuous place in the office of the Society ten days before the annual election. All candidates for election as Managers must be Life Members, Patrons, Associate Founders, or Founders of the Society.

SEC. 8. Any Manager who shall fail to attend three consecutive meetings of the Board, unless excused by a vote of the Board, shall cease to be a Manager.

SEC. 9. The Board of Managers shall at its annual meeting elect a President, two Vice-Presidents, a Secretary, and Treasurer, who shall hold office for one year, or until their successors are elected. The President, Vice-Presidents, and Treasurer shall be members of the Board.

SEC. 10. The Director of the Zoological Park, the Director of the Aquarium, and all other persons employed by the Society, shall be appointed by the Board or by the Executive Committee, and shall hold office during the pleasure of the Board.

SEC. 11. The Board shall, at its annual meeting, elect an Executive Committee and Auditing Committee, which shall hold office for one year, or until their successors are elected. The Board of Managers and the Executive Committee shall also have authority to appoint such other Committees or officers as they may at any time deem advisable and to delegate to them such powers as may be necessary.

SEC. 12. The order of business of the meetings of the Board shall be as follows:

1. Roll Call.
2. Reading of minutes not previously read.
3. Report of Executive Committee.
4. Report of Secretary.
5. Report of Treasurer.

6. Report of Auditing Committee.
7. Report of Director of Zoological Park.
8. Report of the Director of the Aquarium.
9. Election of Officers.
10. Election of Committees.
11. Election of new members.
12. Communications.
13. Miscellaneous business.

SEC. 13. All reports and resolutions shall be in writing, and the ayes and nays may be called on any resolution at the request of one Manager.

SEC. 14. Whenever the funds of the Society shall permit, the Board of Managers or the Executive Committee may award medals or other prizes for meritorious work connected with the objects of the Society.

ARTICLE III.

OFFICERS.

SEC. 1. The officers of the Society shall consist of a President, two Vice-Presidents, a Treasurer, a Secretary, and a Director of the Zoological Park. These officers, with the exception of the Director, shall be elected at the annual meeting of the Board of Managers, but any vacancy may be filled for an unexpired term by the Board of Managers, or by the Executive Committee, until the next annual election.

SEC. 2. The President shall preside at all meetings of the Board and of the Society, and shall be *ex-officio* a member of the Executive and Auditing Committees.

SEC. 3. The Vice-Presidents shall, in the absence of the President, perform his duties and possess his powers, acting in the order of their election.

SEC. 4. The Treasurer shall receive, collect and hold, subject to the order of the Board of Managers, or the Executive Committee, all dues, subscriptions, warrants from the City, fees and securities. He shall pay all bills as ordered by the Board of Managers or the Executive Committee, and shall report to the Society at its annual meeting, and to the Board of Managers at all regular meetings, and to the Executive Committee at each meeting. He shall keep all moneys and securities in some bank or trust company to be approved by the Board of Managers or Executive Committee. The books of the Society shall at all times be open to the inspection of the Managers.

SEC. 5. The Secretary shall be a salaried officer of the Society. He shall be present, unless otherwise relieved by the Board or Executive Committee, at all meetings of the Society, of the Board and of the Standing Committees. He shall keep a careful record of all proceedings, shall have the custody of the seal, archives and books, other than books of account, and shall conduct the correspondence of the Society. He shall issue all notices and tickets, and shall perform such other duties as the Board may direct. He shall be a member *ex-officio* of the Executive, Aquarium, and Auditing Committees, and of the Scientific Council.

SEC. 6. The Director of the Zoological Park shall be elected annually by the Executive Committee at a salary to be determined by said Committee, and shall hold office until removed or his successor chosen by said Committee. He shall

be the responsible administrative officer of the Park, and shall recommend to the Executive Committee candidates for the various positions in the Park. He shall also perform all such other duties in connection with the business, scientific, and literary administration of the Society as may be assigned to him by the Executive Committee.

SEC. 7. The Director of the Aquarium shall be elected annually by the Executive Committee, and shall hold office until removed or his successor is chosen by said Committee. He shall be the responsible administrative officer of the Aquarium, and shall recommend to the Executive Committee all candidates for positions in the Aquarium. The director of the Aquarium shall be *ex-officio* a member and Chairman of the Aquarium Committee. He shall perform such other duties in connection with the Aquarium as may be assigned to him by the Executive Committee.

ARTICLE IV.

COMMITTEES.

SEC. 1. There shall be two standing committees, the Executive Committee and the Auditing Committee, which shall hold office for one year or until their successors are elected.

SEC. 2. The Executive Committee shall consist of seven Managers, together with the President and Secretary of the Society *ex-officio*. Four members shall constitute a quorum, and all meetings shall be called by the Chairman. The Executive Committee shall fill all vacancies in its own number and shall have the full powers of the Board of Managers, except so far as such delegation of power may be contrary to law.

SEC. 3. The Executive Committee shall have the control and regulation of the collections, library, and all other property of the Society, and shall have power to purchase, sell, and exchange specimens and books, to employ and control all officials and employees of the Society, Park, and Aquarium, and generally to carry out in detail the directions of the Board of Managers and the terms of any contract between the City, or Park Board, and the Society.

SEC. 4. All the rules and regulations for the examination of applicants for the various positions in the Park and Aquarium shall be made or approved by the Executive Committee.

SEC. 5. The Executive Committee may regulate the auditing and payment for all current accounts.

SEC. 6. The Executive Committee shall annually appoint an Aquarium Committee, whose duties and powers are set forth in Section II of Article IV of these By-Laws.

SEC. 7. The Executive Committee shall annually appoint a Nominating Committee, whose duties and powers are set forth in Sections 6 and 7, Article II, of these By-Laws.

SEC. 8. It shall also appoint a Scientific Council, whose powers and duties are set forth in Section 2 of Article V of these By-Laws.

SEC. 9. The Committee shall make a written report at each regular meeting of the Board of Managers.

SEC. 10. The Auditing Committee shall consist of three regular members of the Society, in addition to the President and Secretary, members *ex-officio*, and vacancies shall be filled by the Executive Committee. It shall be the duty of

the Auditing Committee to audit, annually, the accounts of the Treasurer, of the Director of the Zoological Park, and of the Director of the Aquarium, and any other accounts of the Society, and shall report to the Board of Managers at its annual meeting.

SEC. 11. The Executive Committee shall annually appoint an Aquarium Committee, not to exceed eight members of this Society, who shall hold office until their successors are chosen. All vacancies shall be filled by the Executive Committee. The Director of the Aquarium shall be *ex-officio* a member and the Chairman of the Aquarium Committee, and such Committee may vest in him any or all of its powers. The Chairman of the Executive Committee and the Secretary of the Society shall also be *ex-officio* members of the Aquarium Committee. Three members shall constitute a quorum. The Executive Committee may delegate to the Aquarium Committee such powers as it may deem proper.

ARTICLE V.

SCIENTIFIC COUNCIL.

SEC. 1. The Executive Committee shall annually appoint a Scientific Council of not more than ten members, and shall fill all vacancies. Members of the Council shall hold office until their successors are appointed.

SEC. 2. The duties of the Council shall be to act as an advisory board in all matters pertaining to the scientific administration of the Society, and especially as to the scientific features of the Park, the promotion of zoology by publications and otherwise, and the preservation of the native fauna of America.

SEC. 3. Four members, including the Chairman, shall constitute a quorum. The Chairman shall be elected annually by the Council. The Chairman of the Executive Committee and the Secretary of the Society shall be members *ex-officio* of the Council.

ARTICLE VI.

MEMBERS.

SEC. 1. The present members and such others as shall become associated with them, under the conditions prescribed by the By-Laws, shall be members of this Society as long as they shall comply with the By-Laws.

SEC. 2. Members failing to comply with these By-Laws, or for other good and sufficient cause, may be expelled from the Society by the Executive Committee.

SEC. 3. Candidates for membership shall be proposed and seconded by members of the Society. The name, occupation, and place of residence of every member as proposed shall be submitted for election to the Board of Managers or the Executive Committee, and such person, when elected, shall become a member upon payment of the annual dues, or of the fees as prescribed below.

SEC. 4. There shall be a class known as Fellows, which shall consist of members of the Society who have rendered marked services to science, and shall be chosen by the Executive Committee. The privileges of Fellows shall be in all respects the same as those of regular members of the Society, but they shall be exempt from the payment of annual dues.

SEC. 5. The annual dues shall be ten dollars, payable in advance, on the first day of May of each year, but the Executive Committee may remit the dues

for the current year in the case of members elected between January 1st and May 1st of each year. The classes of membership shall be as follows:

SEC. 6. The payment of \$200 at one time shall constitute any member a Life Member.

A member who has paid annual dues for a period of five years may thereafter, at any time, upon the payment of the difference between the amount of dues already paid and \$200, become a Life Member, but such payment shall be not less than \$100.

SEC. 7. The payment of \$1,000 at one time, or in the case of a Life Member, of \$800, shall constitute any member a Patron.

SEC. 8. The payment of \$2,500 at one time, or in the case of a Patron of \$1,500, or of a Life Member of \$2,300, shall constitute any member an Associate Founder.

SEC. 9. Any member who shall donate to the Society \$5,000, or property of equal value, or any Associate Founder who shall donate \$2,500, or any Patron who shall donate \$1,000, may be elected by the Board of Managers or Executive Committee a Founder.

SEC. 10. Any member who shall have donated to the Society ten thousand dollars (\$10,000), or its equivalent, may be elected by the Board of Managers or the Executive Committee a Founder in Perpetuity. Such Founder in Perpetuity shall have the power to designate by a last will and testament his successor, who shall thereupon be entitled to all the rights and privileges of the original Founder in Perpetuity, including the right of designating in turn his successor.

SEC. 11. Any member who shall have donated to the Society \$25,000, or its equivalent, may be elected by the Board of Managers, or the Executive Committee, a Benefactor. Benefactors shall have the rights and privileges of a Founder in Perpetuity.

SEC. 12. Persons who have rendered marked service in the science of zoology or natural history may be elected Honorary Members, but not more than three such Honorary Members shall be elected in any one calendar year.

SEC. 13. A resident member who shall have rendered marked scientific or professional services to the Society in any branch of its work may be elected by the Executive Committee a Life Member, Patron, Associate Founder, or Founder. A resident of New York who shall have rendered marked service in zoology or natural history may be elected by the Executive Committee a Permanent Fellow.

SEC. 14. Non-residents who communicate valuable information to the Society, or who have rendered marked service in the science of zoology or natural history, may be elected Corresponding Members.

SEC. 15. Benefactors, Founders in Perpetuity, Founders, Associate Founders, Patrons, Life Members, Honorary Members, Permanent Fellows, Fellows, and Corresponding Members shall be exempt from annual dues.

ARTICLE VII.

PRIVILEGES OF MEMBERS.

SEC. 1. A member's ticket admits the member and his immediate family to the Park on reserve days, and to all lectures and special exhibitions, and may be used by the member's immediate family, and shall be good for the current year.

SEC. 2. Admission tickets to the Park and Aquarium on reserve days are issued to members for distribution, and are good for the current year.

SEC. 3. Each member of the Society is entitled annually to a member's ticket and to ten admission tickets.

SEC. 4. Each member shall also receive one copy of the catalogue or hand-book, the report and official publication of the Society, and shall have all the privileges of the Library and Members' Building.

SEC. 5. No member shall be entitled to the privileges enumerated in this Article unless his annual dues shall have been paid.

SEC. 6. The Life Members shall have all the privileges of members and ten additional admission tickets.

SEC. 7. Benefactors, Founders in Perpetuity, Founders, Associate Founders and Patrons shall have all the privileges of Life Members, and shall in addition receive copies of all scientific works published by the Society.

SEC. 8. Any member who shall fail to pay his annual dues within three months after the same shall have become due, and after notice of thirty days, by mail, shall cease to be a member of the Society; subject, however, to reinstatement by the Board of Managers or Executive Committee for good cause shown.

SEC. 9. Any person elected to membership who shall fail to qualify within three months after notice of his election shall be considered to have declined his election; but such term may be extended by the Board of Managers, or Executive Committee.

ARTICLE VIII.

FINANCES.

SEC. 1. The fiscal year of the corporation shall be the calendar year commencing January 1st and ending December 31st.

SEC. 2. Neither the Society nor any of its Managers or Officers shall contract any debt which, with existing debts, shall exceed in amount the funds then in the Treasury, except to meet expenditures for which the City is liable, and for which the Society will be reimbursed by warrants from the Comptroller's office.

ARTICLE IX.

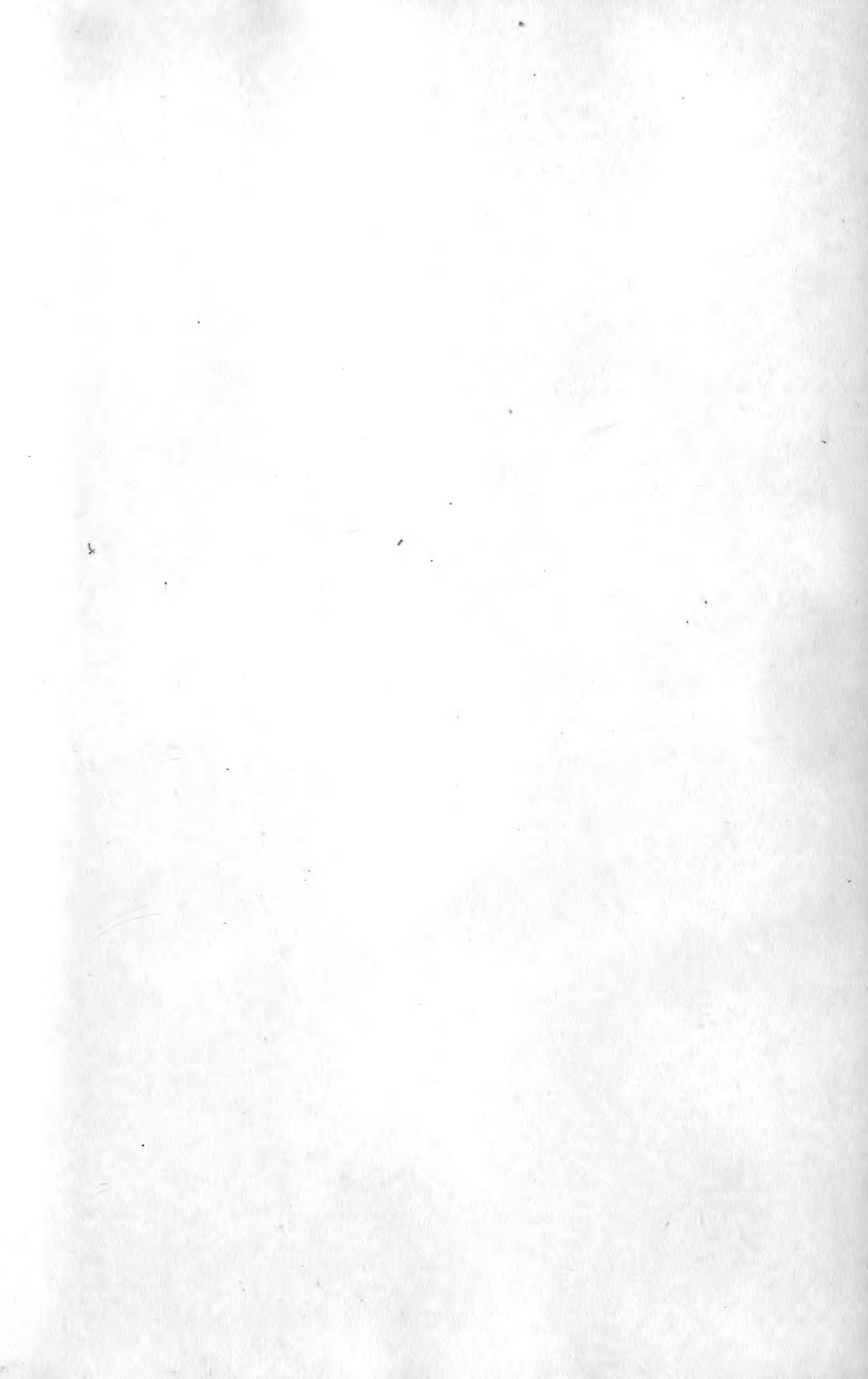
AMENDMENTS.

SEC. 1. Amendments to these By-Laws may be proposed, in writing, at any meeting of the Board of Managers, and adopted by unanimous consent of the Managers present, or if such proposed amendment shall fail to receive unanimous consent, the Secretary shall, with the notices of the next meeting, send a copy of it to each Manager and state that it will be brought up for action at such meeting, when it may be passed by a majority vote.

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