BULLETIN

OF THE

ESSEX INSTITUTE,

VOLUME XXIX.

1897.

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ESSEX INSTITUTE.

VOL. 29. SALEM: JANUARY,—JUNE, 1897. NOS. 1–6.

ANNUAL MEETING, MAY 17, 1897.

THE annual meeting was held in Plummer Hall, this evening, at 8 o'clock, the President in the chair.

The reports of the Executive Committee, Treasurer, Auditor and Librarian, were read, accepted, and ordered to be placed on file.

The report of the Committee on Nominations was presented, and the following persons were nominated and unanimously elected:

PRESIDENT:

ROBERT S. RANTOUL.

VICE PRESIDENTS:

FRANCIS H. APPLETON, EDWARD S. MORSE,
ABNER C. GOODELL, JR., ALDEN P. WHITE.

SECRETARY: TREASURER:

HENRY M. BROOKS. WILLIAM O. CHAPMAN.

REPORT OF THE EXECUTIVE COMMITTEE, MAY 17, 1897.

Owing to the illness and absence of the Secretary, Henry M. Brooks, the Executive Committee prepared a full report of the work of the Institute during the past year. This report was read by President Rantoul. It showed that the year just closed had been a prosperous one for the Institute, and while the work of the Society had been hampered by the continued illness of the Secretary, the Assistant Librarian and the 2d Assistant Librarian, yet the routine work had been carried on and the Institute was in good condition,—its publications had contained articles of great merit which must prove of value to the historical and scientific student. The regular lectures and the less formal meetings, where papers were read by members of the Institute, were noted and highly commended. The matter of field meetings was considered and a continuance advised. The pressing need of more room for the many hundreds of volumes received by donation during the past year was referred to and a strong appeal for the necessary funds to bring about this much desired result was made. Reference was made to the death of Mr. William J. Foster, who had of late been of great assistance at the rooms during the illness of the Secretary. The loss the Institute had sustained in the death

of Vice-President Hagar was noted, and the valuable and long-continued service of the deceased was referred to.

Vice-President White offered the following resolution which was unanimously adopted:

Resolved: That in the judgment of this meeting, the fiftieth anniversary of the founding of the Essex Institute ought not to pass without a distinct and emphatic recognition, and that the Council take steps to carry this vote into effect.

GEORGE M. WHIPPLE,

Secretary, pro tem.

The Executive Committee's Report was as follows:

The Essex Institute has been from the beginning dependent to a very large extent upon the spontaneous help of volunteers, and the class of persons to which such an institution can appeal being a busy and preoccupied class, it is impossible to depend upon the attendance of most of the committees except on special occasions. The institution is too large to be conducted longer by one man, even if that man were its founder. Accordingly, resort has been had, of late years, to an executive committee, which is now practically charged with administering the Society's affairs, and it seems fit that some report should be heard from it, in the enforced omission of the usual report from the Secretary.

To a very exceptional extent the Institute has been hampered this year by the absence, through sickness and other causes, of its working officers and members. New comers, be they ever so well disposed, cannot fill the places of experienced workers. But it has not been the practice of the Institute in the past to magnify its difficulties, and fortunately there is enough of encouragement in

the record of the year just closed, to make repining needless. The loss by death of two presidents in quick succession had disordered to some extent, before this year, the normal state of our affairs, and it has been the cherished purpose of the Executive Committee for this year to restore to a regular system as speedily and as fully as might be, the running machinery of the Society. The recent death of William J. Foster removed one of the most esteemed and valued of our volunteer assistants.

The Historical Collections are now printed and distributed for the year 1896. The Bulletin is also complete for the year 1895. Both of these volumes lie before you on the table, and will be found to be made up of matter of a quality as valuable as and possibly more readable than those of some preceding years. Large use has been made in both volumes of illustrations, which modern electrical methods produce at a cost within our reach. Our pages have been opened freely to the papers offered by the Local History Class.

The Lecture courses have been well sustained and well attended. Nine free lectures have been furnished, of a quality which, it will appear on a recital of the list, it would be difficult to better. Professor Goodale of Harvard opened the course with an illustrated lecture on the Botany of New Zealand. Subway-Commissioner Gargan followed with an illustrated account of the great Boston enterprise. Next came Prof. Arlo Bates of the Institute of Technology on "The Language of Literature," followed by Professor Minot of the Harvard Medical School on the great Russian Naturalist, von Baer. The fifth lecture was from General Curtis Guild, Jr., on the "Sword in Warfare." The sixth was by Rev. E. D. Towle on the Poet Holmes, and the next by Professor Ripley of the Technological School on "Some Peculiar People of South-

ern France." Louis Prang followed him, on "Chromo-Lithographic Art," and Dr. Hasket Derby, describing "Wisbuy, a Dead City of the Baltic," completed the series. The last three lectures were copiously illustrated. The promise of another lecture on the "Old Time Clergymen of Salem," by Rev. J. W. Buckham, was defeated by the illness of the speaker.

The nature of these addresses is at once a tribute to the character of the audiences which our courses command and an evidence that the work of the Institute is held in high esteem amongst the class of lecturers who are able and willing to make gratuitous contributions to popular culture. Our own home course of evenings in the Institute Building has been also well sustained and furnished several papers which have been accepted for the Historical Collections. Wm. L. Welch, Gilbert L. Streeter, John Robinson, Arthur H. Chase, Edward A. Silsbee, Ezra D. Hines, Mrs. Henry Wardwell, Mrs. W. S. Nevins and Miss A. L. Warner have each, in turn, occupied evenings, —Mr. Streeter two,—in an acceptable manner, and a considerable number of local topics have been illustrated and discussed.

The Institute has commemorated the seventy-fifth anniversary of the founding of the Essex Historical Society, which was practically its own birthday, for the mantle of the Historical Society has fallen, for better or for worse, upon the shoulders of the Essex Institute. Before the next ensuing annual meeting, the Institute will be called on, in March, 1898, to give an account of its stewardship for the first half-century of its corporate life. It would be well if this present annual meeting should indicate, in some way, what notice it would wish the Society to take of this event.

Prof. Daniel B. Hagar, a vice-president of the Institute for many years, has since the last yearly meeting removed

from the county and soon after died. His many services, fitly commemorated in our records, at the time, have not been forgotten.

The Institute has felt called on, during the year, in common with other like bodies, to declare its views on several public questions closely allied with its work. In these cases, your Executive Committee has ventured to submit resolves at regular meetings of the Institute, and these have, without exception, met the approval of the members present. In this way the voice of the Society has been raised against the destruction of the Frigate Constitution; in favor of acquiring for a State Park the Stage Fort property on Gloucester Harbor; and in favor of a proposal, submitted by the Swiss Government to the Universal Postal Congress just holden at Washington, for admitting to the mails of the world scientific specimens at the same postal rates as samples of merchandise.

The Institute in the early period of its career derived great advantage from a system of field-meetings adopted, as Dr. Wheatland said at a field-meeting at Manchester, July 18, 1856, from the practice of the Berwickshire Naturalists' Club in Scotland. Shall they be revived? It is not unlikely that a practical test will be applied this summer, in the form of invitations to visit two or three attractive localities. In that case it will devolve upon the field-meeting committee, which has been a sinecure for several years past, to determine how far under the greatly changed conditions now existing — when so many towns, twelve at least, have local societies of their own, and when facilities for travel are vastly increased and extended, — the attempt to revive field-meetings is expedient and practicable.

Donations have poured in upon us in such volume as to tax the utmost capacity of our available space; and a generous rear-extension of our building has become as

necessary for the accommodation of the normal, daily growth of the collections as it is indispensable, if we would provide for large donations already promised and secure such as our lack of space may, it is feared, be diverting to some other destination.

Our lack of funds is actual and not prospective and no donor, who has money to devote to the interests of general culture, could do better than by endowing us with a portion of his bounty.

Among the gifts received this year, are six volumes of elegant engravings of the details of East Indian architecture, presented by the Maharaja of Jeypore, with splendid illustrations of American architecture from another source; a donation of rare value and interest from Henry Fitz Gilbert Waters, including a copy of Robinson Crusoe's will; a Hebrew Bible enclosed in a case measuring $1 \times 1\frac{1}{4}$ inches and worn in Russia as a watch-charm; a complete Parsee presentation costume; a photograph of an ancient knife handle richly embossed, once the property of William Burnet Browne of Salem and Virginia, and now in possession of a descendant alike of his and of the Washington family; large donations of books, specimens and curious articles of household and personal convenience from the estates of George D. Phippen, William Mack, John Pickering and Miss Bemis; portraits of Samuel Webb, of Benjamin Wheatland and wife, of Dr. Bentley, of the philologist Pickering and other worthies. In addition to which some effort has been made to save to the future some of the vanishing landmarks of our day. Miss Brooks has presented the Institute with a picture of the old Union Insurance Building which stood looking down Market, now Central street, until 1836, and the Institute has secured drawings by Mr. George E. Browne of the old Eastern Railroad Station, of the West Gate of the Common, of the historic toll-house and draw

of Essex Bridge, of Washington's visit to the North Beverly Cotton Mill, and of the Browne mansion on Folly Hill in Danvers. The acquisitions of the year are so varied, so numerous and so valuable that it is unsafe to particularize among them to the exclusion of any. The forthcoming Secretary's report must be awaited if justice is to be done them.

In closing this report it remains for the committee to give voice to the obligations of the Institute for the very cordial support from the people of this community of which it has been sensible throughout the year. If this is, as it seems to be, an evidence of an appreciative recognition of its work and an earnest, unabated confidence in its future, the friends of the Institute may well take it as a guarantee of coming prosperity. Though our needs are greater to-day than ever in the past, our claims are seen to rest upon successes in a wider field and based upon a firmer footing.

Report of the Secretary, for the year ending May 17, 1897.

The very full report of the Executive Committee makes it almost superfluous for me to add anything except, perhaps, a few statistics which it has been usual for the Secretary to furnish every year for the annual meeting.

The donations to the cabinets the past year have been 455, from 115 different donors.

11,035 persons, according to our record, have visited the old meeting-house; but, as many people go in at the gate without making their appearance in our room, it would be safe to say, there must have been at least twenty-five per cent. more visitors than we have a record of. We have to spend a great deal of time answering the usual batch of questions, such as — "Is this key the

original one?" "Was the church Baptist?" Even some Rhode Island people have not yet learned that Roger Williams was never much of a Baptist, and that he finally went back to the church of England. Nor can they understand that Salem people *did not* persecute him. These things have to be explained over and over again. What Historical Society in this country has to make so many explanations as have we? We furnish a printed itinerary to visitors which, of itself, causes them to ask a multitude of questions, as to the distance of each place, and the direction, and how long it will take to reach it, and where a good lunch can be found, and can we furnish them with a glass of water, etc. A gentleman, who happened to be listening the other day to some strangers asking numerous questions, said to me, "Is this the Bureau of Information?" It would be amusing, if I had the time, to record all the questions asked. Seriously, I fear the Directors do not consider how much time these endless explanations take. Unless a person can be thinking of three or four different things at once, it is almost impossible to write even a letter in the Secretary's room, some of these summer days. I think it is desirable to have strangers visit our rooms and examine our collections, but I do not think the whole work of the Institute should be sacrificed to this business of explaining all that is to be seen in Salem.

The following members have died during the year: Hon. John I. Baker, of Beverly, Willard H. Brown, Rev. Caleb Davis Bradlee, of Boston (life member), James Buxton, of Peabody, Benj. S. Calef, of Boston, Rt. Rev. A. C. Coxe, of Buffalo, N. Y., G. Winthrop Coffin, of Boston, Frank T. Dalrymple, Perley Derby, Miss Mary Abigail Dodge, of Hamilton, Wm. J. Foster, Prof. D. B. Hagar, Miss Mary L. King, Miss Mary I. Lefavour, Wm. Henry Lovett, of Beverly, Hon. John

Lowell, of Boston, George E. Pearson, Hon. Stephen H. Phillips, Rev. A. H. Quint, D.D., of Boston, Arthur S. Rogers, A. A. Sawyer, Michael W. Shepard, Geo. F. Sibley, James J. Storrow, of Boston, Francis Tuckerman, Mrs. Mary A. Turner, of Marblehead, Miss Anna E. Ticknor, of Boston, Chas. P. Trumbull, of Beverly, William L. Vinal.

From various causes there have been a number of withdrawals of members the past year. Some from pecuniary reasons, some by removal from town; some have left us on account of the historical societies formed in their own towns which, naturally enough, they wish to encourage, rather than the Institute; others for decline in interest in historical matters; others perhaps have become more interested in the bicycle, which seems to affect almost every kind of business. All these, together with the deaths named, have somewhat reduced our membership. It will be necessary for us to be continually recruiting to make up such losses, to which we are always liable.

I would recommend that a committee be appointed, of perhaps three persons, to be called a "Committee on Membership," to take charge of this matter, and advise with the Secretary from time to time as to the best course to be pursued to keep our numbers as large as possible.

In conclusion, I have only to say, that the Society has been unfortunate the past year in having so much sickness among its assistants; but through the active personal attention of its President, the work has gone on remarkably well, and now all that is really needed is the room and funds necessary to greatly increase its usefulness.

Which is respectfully submitted,

HENRY M. BROOKS,
Secretary.

Report of the Librarian.

The additions to the library for the year (May, 1896 to May, 1897), have been as follows:

By Donation.

Folios,	77
Quartos,	97
Octavos,	1,239
Twelvemos,	813
Sixteenmos,	301
Twenty-fourmos,	80
Total of bound volumes,	2,607
Pamphlets and serials,	5,426
Total of donations,	8,033

By Exchange.

Folios,	5
Quartos,	7
Octavos,	193
Twelvemos,	1
Total of bound volumes,	206
Pamphlets and serials,	1,517
Total of exchanges,	1,723

By Purchase.

Folios,	1
Quartos,	2
Octavos,	7
Total of bound volumes,	10
Pamphlets and serials,	7
Total of purchases,	17
Total of donations,	8,033
Total of exchanges,	1,723
Total of additions,	9,773

Of the total number of pamphlets and serials, 3,189 were pamphlets and 3,761 were serials. The donations to the library for the year have been received from 164 individuals and 113 societies and governmental departments. The exchanges, from 13 individuals and 247 societies and incorporated institutions, of which 115 are foreign.

The library year has been a very uneventful one. Our pressing needs of more stack-room for books, and a catalogue, are no nearer attainment than they were a year ago, except perhaps as each year brings us nearer the time when those wants must be supplied.

Our work this year has been seriously hampered by sickness. The assistant librarian, Miss Mary E. Arvedson, was obliged to relinquish her work and seek rest and change, and it is doubtful whether she will feel that she can take it up again. Her loss is a serious one to the Institute. Familiar, as she was, with the contents of the library, she was of great assistance to all who sought access to it, and this familiarity, the result of years of faithful service, we shall miss for a long time in any successor. Miss Waters has also been absent for a long period on account of sickness, but it is hoped that before long she will be able to return to her duties. Miss Bartlett has resigned, not on account of sickness, but to assume new duties and responsibilities, and this has left us with inexperienced assistants who, however efficient and faithful they may be, cannot at once make good the places thus left vacant.

All this, however, has not seriously interfered with the use of the library, which has been very satisfactory. The pleasant rooms of the Institute are always open to students and investigators in any branch of literature or science, as well as to the general reader, and such assistance as we can render is gladly and willingly given.

Although somewhat crippled by what seems to be more than our share of sickness, including that of our genial secretary whom we all hope to welcome back to his labors before many weeks, the Institute never falters in its good work. Sickness and death make but a momentary halt in its progress. The gaps are quickly closed and the work

goes on as before. Year by year what is being done to preserve the traditions, and perpetuate the history of county and city is more and more appreciated. Let us make sure that when we are called upon to give the conduct of the Institute into other hands we may be able to give a good account of our stewardship.

CHAS. S. OSGOOD,
Librarian.

TREASURER'S REPORT.

RECEIPTS.

Balance from last report,		$345 15
Received from invested funds,	$3,254 38	
" " assessment of members,	2,166 00	
" " life membership fees,	50 00	
" " publications,	269 28	
" " Almy, Bigelow & Washburn, for		
" " "Reception Fund,"	25 00	
" " Sam'l A. Carleton, for "General Fund,"	32 00	
" " other sources,	202 68	5,990 34
		$6,335 49

EXPENDITURES.

Salaries of secretary, assistant librarians and janitors,	$2,277 32	
Fuel,	197 75	
Lighting and water,	110 96	
Postage and express,	189 50	
Supplies,	102 40	
Lecture expenses,	34 00	
Books,	331 06	
Publications and printing,	1,214 09	
Our proportion of Athenæum expenses,	318 90	
Annuities,	610 00	
Interest on loan,	197 19	
Storage warehouse,	37 80	
Repairs on building, etc.,	352 57	
Framing pictures,	30 50	
Reception expenses,	143 60	
Miscellaneous,	38 75	$6,186 39
Balance of cash on hand,		149 10
		$6,335 49

Respectfully submitted,

W. O. CHAPMAN, *Treasurer.*

Auditor's Report.

Salem, May 17, 1897.

Your auditor respectfully reports that he has examined (on May 15, 1897) the securities detailed in the treasurer's report and finds them to agree with the schedule by him presented herewith.

By the treasurer's annual report of receipts and expenditures, the books of account appear to be properly and systematically kept, and the usual vouchers filed.

H. M. Batchelder,

Auditor.

Lectures and Meetings.

Regular Meeting, Monday, June 15, 1896. — The President spoke of the seventy-fifth anniversary of the founding of the Essex Historical Society which would occur in September next and of the fiftieth anniversary of the Essex Institute which would occur in two years and hoped that notice would be taken of both of these events.

He also referred to the probable loss to our Society of Prof. D. B. Hagar, who was soon to remove from town.

Monday, June 22, 1896. — A meeting of the Directors was held at the rooms this afternoon at 3 o'clock. The President called attention to the seventy-fifth anniversary of the old Essex Historical Society, which occurs this year, and suggested that notice should be taken of this event by the Society. It was voted that the matter be referred to the Executive Committee with full powers.

Mr. T. F. Hunt referred to a recent gift of valuable books from the Maharaja of Jeypore, India, and it was voted that the President and Secretary send a letter of thanks to His Highness for this favor.

The letter was as follows: —

JUNE 27, 1896.

The Essex Institute has, by vote of June 22, 1896, directed us to communicate

To His Highness,
The Maharaja Sawai Madhu Singh, G.C.S.I.,
of Jeypore, Rajputana, India,

the very high sense of obligation and gratitude entertained by the Institute for the princely gift of six folio volumes of the "Jeypore Portfolio of Architectural Details," lately received through the generosity of His Highness and placed upon our shelves.

Such an addition to our art-collection comes most opportunely at a time when the architectural wealth of India is more than ever before attracting the deserved attention and admiration of the modern world, and when the matter of elegant decoration in wood, metal and stone is being studied and pursued with an interest at once quite new to America and not unworthy of the antique spirit for domestic adornment which has inspired the art work of India for ages before this western world began.

May we be permitted to add that it seems fit that Salem, before all other cities of this continent, should be favored with the consideration of His Highness, who may well have been influenced in the distribution of his bounty by a knowledge of the fact that Salem ships were pioneers in the commercial intercourse between India and America, and that Salem merchants and navigators who, in large measure, sustained for years the amicable relations subsisting between these countries, established here a social and charitable fraternity known as the East India Marine Society and gathered here a collection of Oriental art-treasures and curiosities without a rival in America.

We beg His Highness to be assured that the magnificent portfolio of Indian art could have been placed in no library where it would challenge more general appreciation or more heartfelt thanks. And we beg to submit herewith an impression of our city seal, upon which His Highness will read, we trust not without interest, the motto:

"*Divitis Indiæ, usque ad ultimum sinum.*"

Captain Whipple spoke in terms of interest of the fact of Mr. Hagar's change of residence and of his resignation as principal of the State Normal School in this city, and it was

Voted: That the Essex Institute gives voice to the universal sentiment pervading this community when it records the sense of deep regret with which the withdrawal of Vice-President Daniel B. Hagar from his post at the State Normal School in Salem has been received.

Coming amongst us as a well-known and accomplished teacher, Mr. Hagar has, for a whole generation, kept the important institution entrusted to his charge in touch with the best educational influences and ideas of the day. By virtue of a rare personality he has been able to mould it to his own intelligent and high ideals and, by assiduous devotion and care, he has made it an honor to the County of Essex and a model amongst the academic establishments of the State.

Although weighted with this load, he has not failed to respond to the various calls of American citizenship upon the time and energies of the well-disposed, but has borne a full and willing share in every social, political and municipal concern; especially has he held himself ready for every service which the Institute could fairly and reasonably demand. It will be no easy task to fill the place left vacant by the withdrawal of Mr. Hagar.

Voted: That the President, with Messrs. Whipple and Osgood, be a committee to communicate to Mr. Hagar these sentiments of regard and esteem expressed by the Directors, and to tender to him, in the name of the Essex Institute, some general recognition of his eminent services to the county, embodied in such form as may be most consonant with his feelings and wishes.

To this vote, duly communicated to Professor Hagar,

the following reply was received, addressed to Capt. George M. Whipple of the Committee.

JAMAICA PLAIN, MASS.,
JUNE 24, 1896.

MY DEAR CAPT. WHIPPLE,

I most gratefully appreciate the kindness of the Directors of the Essex Institute as expressed in their resolutions with regard to my departure from Salem. I am profoundly thankful for this evidence of friendly regard.

I exceedingly regret that the condition of my health must debar me from meeting the Directors at an informal dinner or at a reception. Were I in good physical condition it would be a delight to me to meet the members of the Institute and to discourse upon its welfare.

Please present my thanks to your associates of the committee on resolutions relating to myself, and accept for yourself my grateful acknowledgment.

With sincere wishes for the prosperity of the Essex Institute,

I remain, yours truly,
DANIEL B. HAGAR.

Regular Meeting, Monday, July 20, 1896. — It was voted to amend the By Laws, Article II, Section 2, relating to the election of officers, in the second line, by adding after the word "Society" these words, "together with a finance committee," as provided in Section 7, of the Charter of the Essex Institute.

At a meeting of the Executive Committee held this day it was voted, That the Institute celebrate the seventy-fifth anniversary of the founding of the Essex Historical Society, and that the President be requested to prepare an address to be delivered on the occasion.

Regular Meeting, Monday, Aug. 17, 1896. — Mr. George R. Curwen offered the following resolutions:

Resolved: That the Essex Institute records with sorrow and deep regret, the death at Sharon, on the 4th instant, of Daniel Barnard Hagar, a Vice-President of the Society since 1873, the Principal of the State Normal School of Essex County since 1865, and a citizen of Salem greatly endeared to this community by his life-long fidelity to the highest trusts.

If a career of loyal service to important interests, — of ready helpfulness to others and consideration of their needs, — of public-spirited devotion to the general good, deserves to be remembered and applauded, the life just closed is worthy of it all.

Friday, Sept. 18, 1896. — The seventy-fifth anniversary of the founding of the Essex Historical Society was celebrated this day by the Essex Institute. A meeting was held in Academy Hall, at 3 o'clock, before which Hon. Robert S. Rantoul delivered a commemorative address which will be printed in pamphlet form.

After the exercises the company adjourned to Plummer Hall, where an informal hour was spent in social intercourse.

Regular Meeting, Monday, Oct. 19, 1896. — It was

Voted: That the Essex Institute receives with gratitude and thanks, at the hands of its life-long patron and contributor, Henry Fitz Gilbert Waters, a donation of rare value and interest, consisting of a Madonna, painted in the manner of Murillo; an ancient Italian marriage coffer or *cassoné*, richly carved in black oak; two chairs of unique design, one 15th century English, the other Italian and older; and two very rare and beautiful specimens of antique cut glass, — the whole forming a

promising foundation for the art collection, which it has long been the hope of the generous donor, as well as of the Essex Institute, to see growing up in Essex County.

Voted: That a copy of this vote be sent to Mr. Waters.

Regular Meeting, Monday, Dec. 21, 1896. — The Secretary read a letter received from the three sons of the late George Dean Phippen, tendering to the Society their father's collection of books, shells, minerals, etc.; and, on motion of Mr. George L. Peabody, it was

Voted: That the generous offer this day received of books from the library of the late George Dean Phippen, together with a considerable collection of shells and minerals, an herbarium accumulated by that enthusiastic and untiring student of nature, and a framed likeness of the late Samuel Webb, a life-long member of the Natural History Society of Essex County, — be accepted with thanks.

Voted: That the donation be preserved as a fitting memorial of our first librarian, who lived to be the last survivor of the seventeen original members of the board of government of the Essex Institute.

Voted: That a copy of the above be forwarded to the family of Mr. Phippen.

Monday Evening, Jan. 4, 1897. — Regular meeting in the Library room. Mr. William L. Welch spoke of the history and topography of the Salem Neck, showing from a large map the different points of interest. He thought that the inlet between Winter Island and the Juniper was "Winter Harbor" as described in deeds, etc., and not, as has been commonly supposed, the water between Winter Island and that part of the Neck bounded by Hathorne's point, now called Cat Cove. Butt Point, where the first ferry started for Marblehead, was near the

Point of Rocks at Hathorne's Point. Later, the ferry landing was at the foot of Turner street. Mr. Welch, having been for many years a resident on the Neck, and most familiar with that locality, presented many important facts.

Extended discussion followed by Mr. Henry F. Waters and other members. This paper is in print.

Monday, January 11, 1897. — The first lecture in the "free course" was given this evening, in Plummer Hall, by Prof. George L. Goodale of Harvard University; subject, "New Zealand," illustrated with lantern views. Vice-President Edward S. Morse presided and, before introducing the lecturer, read the following paper offered by the Executive Committee.

The Executive Committee of the Institute respectfully submits this expression of sentiment to the consideration of the members here assembled.

Voted: That the Essex Institute would add its voice to the patriotic demand for preserving what remains to us of the Frigate Constitution.

No sentiment of the heart is more worthy of encouragement than the love of country, and in no way can the sentiment be cherished more effectively than by consecrating and handing down the memorials of distinguished patriotic devotion and daring.

The story of the Frigate Constitution is embalmed in history and song. No war-ship ever bore our country's flag more bravely. No nobler war-ship ever bore — as the enemies of the country can attest — the flag of any nation. Her career was one of unchecked triumph.

If citizens are to be taught that gallantry in the defence of the nation's rights will be forever honored, — if those who venture life and fortune on the deep are to be assured, hereafter, that the strong arm of the nation is everywhere

and at all times around them,— if young heroes are to be raised up to fill the posts left vacant by those who already crowd the Valhalla of the nation's glory, — it would seem that the Frigate Constitution should be preserved as an object-lesson in patriotic daring, so long as a bolt remains which was once the instrument of achievements destined never to be forgotten.

The votes were adopted.

Professor Goodale spoke of the location of New Zealand, which consists of three islands, North Island, Middle Island and South or Stewart's Island. Total area about 100,000 miles, or nearly as large as Great Britain. The climate is as varied as that of North America. The vegetation is very luxuriant, all the native plants being evergreen. The geological formations were described by the lecturer as extraordinary to the scientist. The islands are of volcanic origin and a great portion of the total area is occupied by mountains among which are many extinct and some active volcanoes. Many of the streams are of hot water, powerfully charged with mineral properties, which form deposits on the rocks and other objects in their course, affording very beautiful effects.

There are about 40,000 of the aboriginal tribes now living. While their moral standard is somewhat different from that of the people of the United States, yet they have proved to be brave, generous and truthful. The colonists outnumber the aborigines three to one.

Pictures were shown of the town of Christchurch, one of the chief ports. The educational institutions of the colonists are of the highest class.

At this opening lecture Plummer Hall was crowded and many persons came to the door who were unable to get in.

Monday Evening, Jan. 18, 1897. — Regular meeting in the Library room. Mrs. W. S. Nevins, of the Local

History Class, read an interesting paper on some of the early colonial magistrates, speaking principally of William Hathorne, Emanuel Downing, John Humphrey and George Downing, the latter being the second graduate in the first class of Harvard College.

Miss Helen D. Lander then read a paper prepared by Mrs. Henry Wardwell, on Salem Village. These papers were well written and of great interest and were discussed by the President and some other members.

Monday Evening, Jan. 25, 1897. — Hon. Thomas J. Gargan, of Boston, lectured in Plummer Hall on the "Boston Subway." He spoke of the great need of some way of relieving the crowd in the narrow streets of Boston. He gave an account of some European subways, showing the Boston one to be much larger and more convenient than any abroad. With lantern slides he exhibited views of the plans and mode of its construction and probable working when completed, and the condition the Boston streets will be in at that time, especially Tremont and Boylston streets.

Monday Evening, Feb. 1, 1897. — Regular meeting in the Library room. Mr. John Robinson gave an interesting and instructive talk on "Mushrooms, Edible and Non-edible." He exhibited many specimens, with illustrations on the blackboard. Rules were given, so far as it is possible to give rules, for the gathering of mushrooms. The extremely nutritious character of some kinds, and the difference between those excellent fungi and the poisonous toad-stool were noted. Some canned and some dried specimens of Italian and other kinds were exhibited, which emitted a peculiar odor.

The subject was discussed by the President, Professor Morse, Dr. Merriam and others.

Monday Evening, Feb. 8, 1897. — Prof. Arlo Bates, of the Institute of Technology, Boston, lectured in Plummer Hall on "The Language of Literature." He began his lecture by referring to the fact that all language is a system of conventions. If we do not understand the convention we are not able to communicate with the individual using it. This principle holds good in music as well, as is shown in the difference between European and Chinese music for example. The latter, a jumble of unmelodious sounds to our ears, to the Chinese conveys sentiment and deep meaning. The poet also has a language of his own, one far removed from the ordinary speech of every-day life, one by which he can express the emotions and phases of feeling, which we try in vain to put into words. The poet's genius consists in this, that he turns his hearers, ordinary men though they are, into poets for the time being; makes them see with his eyes and, by some luminous phrase, lifts them to something of his own level of inspiration. Similes form a great part of our language, often distorted, perhaps robbed of their original meaning, yet full of suggestion to the student. Such a word is "backer," originally used to denote the one who stood back to back with you in the fight, warding off all blows from that side. The language of literature is full of allusions which must be understood to get from it the meaning which should be there. These allusions may be classical, historical, mythological, allusions to folk-lore or to literature itself. Examples of all these readily present themselves. Our ancestors read and re-read their treasured volumes of the classics, and our speech is full of references to persons and situations found therein. History has given us much that we use without thought, but cannot fully understand without having in mind the especial event or person

referred to. Folk-lore allusions, as Milton's when he speaks of the "Lubber Friend" or "Lob lie-by-the-Fire," are perhaps less common, yet not infrequently met with. Robert Browning, of the modern poets, refers most often to out-of-the-way lore of this sort, a habit which gives some color to the oft-repeated complaints of his obscurity. The Bible has left a deeper impress on our literature than any one factor. We owe more than we often realize to the stately language and dignified expressions of the King James version.

Monday Evening, Feb. 15, 1897. — Regular meeting in the Library room. Mr. Arthur H. Chase read a very entertaining paper on "Every-day life in Paris." The speaker said that it had been generally held by Americans that there was no home life in Paris, but it is a great mistake to suppose that there is no home feeling there, for in reality it is just the reverse. Home is as much cherished as it is in England or America. Mr. Chase, having lived many years in Paris, had excellent opportunities for observing the manners and customs of the people. He described Sunday, which, although not kept with the strictness that it is in England or in the United States, after morning services in the churches, was more a day of family gatherings and rational enjoyment. In concluding his remarks Mr. Chase said that the two best places in the world in which to live are Salem and Paris. Discussion followed.

Monday Evening, Feb. 22, 1897.—The fourth lecture in the course was given this evening in Plummer Hall, by Prof. Charles S. Minot, of the Harvard Medical School, Boston. His subject was "von Baer, the Greatest Russian Naturalist," which proved to be very interesting.

Monday, March 1, 1897.—Regular meeting of the Society this evening in the Library room. Gilbert L. Streeter, Esq., read an elaborate paper on "Salem Neck and Winter Island." The speaker said that Winter Island contains but thirty-six acres, but has a great history. The place was first visited by white men in 1614. Captain John Smith called this section Bass-town and Bass-table because of the abundance of bass in the bay at that time. The Indians here were more fishermen than hunters. Some early families of Salem settled on the Neck, and Winter Island was the centre of the fishing business. The present causeway between the Neck and the Island was built as early as 1637. There were places for forty vessels to land fish at one time. The wharves were on the inner side.

The road now running to the Fort was a street called Fish street. There were houses towards Salem along the shore, and the cellars have been visible within the memory of people now living. The settlement on the neck at that time was called Watertown. There was an inn kept by John Clifford on the island. In after years the Neck became a place for ship-building. The famous "Frigate Essex" was built here near the close of the last century. The first fort on Winter Island was begun in 1643. In 1699 it was known as Fort William. In 1794 it was ceded to the United States, and in 1799 named Fort Pickering, and on being rebuilt was considered one of the best fortifications on the coast. Winter Island has been used as a camping ground for militia at times, since 1853.

The paper is printed in the Historical Collections.

Monday Evening, March 8, 1897.—Curtis Guild, Jr., of Boston, lectured in Plummer Hall on "The Sword in Warfare."

General Guild traced the development of the sword from the first form, which somewhat resembled an axe, to the sword of the present day. He illustrated the subject by exhibiting a large and rare collection of swords of nearly every kind and period since the weapon was first known. Among numerous others, there were a rapier of the time of Queen Elizabeth, and a claymore such as is described by Sir Walter Scott in the "Lady of the Lake," —a sword used by General Stark, in the war of the Revolution, and two ancient Japanese swords belonging to Prof. E. S. Morse. The swords provided for officers of the American army were simply "dress swords" and not designed to be used like those of cavalry soldiers, the latter being powerful weapons. The sword, he said, has never been used as had the dagger, the revolver or the bludgeon, as the weapon of the murderer, but only as the weapon of the soldier.

Monday Evening, March 15, 1897.—Regular meeting in the Library room. Mr. Edward A. Silsbee, formerly of Salem, gave a most entertaining talk upon foreign experiences and life, extending over a long residence in Europe and Asia. He called his subject "Internationalism" and, while applauding the charms and discoursing of the advantages of life in foreign countries, summed up with the verdict that the older he grew the more persuaded he was that America was the country to live in. This was one of Mr. Silsbee's unique productions: quite impossible to report. He said among other things that he told an Englishman the best thing his country ever did was "to produce us!" Referring to our own country, he thought we must rediscover the imagination, before we could have any great poets. Wealth will not make them.

Meeting in Plummer Hall, Monday, March 22, 1897. —At a meeting of the Essex Institute, holden at Salem, March 22, 1897, the following vote was adopted :

Voted, That, in the judgment of the Essex Institute, the tract of land overlooking Gloucester Harbor and at various times known as "Stage Fort," "Stage Head," and "Fisherman's Field," is a fitting location to be acquired by the Commonwealth of Massachusetts as and for a State Park.

Its history entitles it to recognition. As early as the winter of 1623–4, a group of pioneers began a fishing plantation there. A part of them, in 1626, moved up the shore to Naumkeag, and effected the settlement which, reinforced by Endecott and his party in 1628, and by Higginson and his party in 1629, became Salem in July of the last named year, and was the foundation of the Colony of Massachusetts Bay.

In honor of the Chief of these pioneers, the War Department, at the suggestion of the Institute in February, 1864, gave to the works then projected at this point to supplant the ancient Revolutionary defences of Gloucester Harbor, the name of "Fort Conant." The Sheffield patent of 1623, under which these settlers claimed, provided for a compact town on the water-side of Cape Ann Bay,—each planter to have thirty acres in severalty,—and five hundred acres of common land along the Bay to be devoted to the public uses of schools, churches, hospitals, and the maintenance of ministers, magistrates, and other town functionaries,—a typical New England village, worthy for its own sake of a lasting memorial.

No spot is more closely than this identified with the origin of Massachusetts. Its picturesque and uneven surface would well meet the demands of landscape gardening,—its unrivalled ocean outlook makes it the ideal of

a seaside resort, whilst its location within easy reach of a vigorous and growing city would give to the reservation a practical value for the health-dispensing uses of a public park.

Rev. E. D. Towle, of the East Church, Salem, read a paper on Dr. Oliver Wendell Holmes, and his spirited recitation of some of the poet's best work, interspersed in the hour's reading, added greatly to the enjoyment of the evening.

Monday Evening, March 29, 1897.—Professor Ripley, of the Massachusetts Institute of Technology, lectured in Plummer Hall, on "Some Peculiar People of the South of France," illustrating his remarks with maps and a large number of drawings of heads taken from life, showing the typical features and formations. He had discovered, in southern France, a little isolated population which seemed to have remained pure and unmixed almost from prehistoric times.

Monday Evening, April 5, 1897.—Regular meeting in the Library room. Miss Warner, of the Low School, gave one of her delightful bird-talks on the early comers which appear in April in our fields and hedges. The address was illustrated with stuffed specimens from the collections of the Peabody Academy of Science and was very fully reported in the Salem Gazette for April 6, 1897.

Monday Evening, April 12, 1897.—Louis Prang, the creator of chromo-lithography in America, lectured in Plummer Hall, giving an exposition of his process, illustrated with numerous products of his popular art. Mr. Prang prefaced his paper with a somewhat detailed and very interesting account of his personal experiences and struggles in building up the great business which has

made the world his market and made him one of the world's benefactors, in that he has brought fine-art products down to a price within the reach of the humblest. If he allowed himself to accept any praise, he said it was as one who had popularized good art.

Monday Evening, April 19, 1897.—Regular meeting in the Library room. There was offered for consideration a letter from "The Academy of Natural Sciences" of Philadelphia, calling attention to a meeting of the International Postal Congress to be held in Washington, D. C., on May 5, 1897, to consider, among other subjects, an amendment to the present postal laws, "which will admit specimens of natural history to the mails at the rate for samples of merchandise, that is to say, at one cent for every two ounces."

The Academy of Natural Sciences of Philadelphia had adopted resolutions approving of the proposed amendment, and requesting the Essex Institute to adopt similar resolutions and send them to the Postmaster-General at Washington.

The following resolutions to that effect were offered and unanimously adopted:

Resolved: That the Essex Institute heartily concurs in the action taken by the Academy of Natural Sciences of Philadelphia, recommending to the coming International Postal Congress, at the instance of our Sister Republic of Switzerland, a reduction in the rates of postage upon mailable specimens in Natural History to the rates imposed upon samples of merchandise, the same to affect the mail service of the Universal Postal Union.

Resolved: That the Essex Institute respectfully urges the amendment, to be proposed by the Swiss Government, upon the favorable consideration of the Postmaster-Gen-

eral of the United States, and of delegates to the International Postal Congress, about to sit at Washington.

Mr. Ezra D. Hines, of Danvers, read an interesting and instructive paper entitled, "Some Danvers Acres." After a few introductory remarks, the speaker said that in early times the measure of an acre of land was what a man and a pair of oxen could plow over in a day. The acres that Mr. Hines referred to in his lecture were located in Danvers, as the title shows, and settled upon and improved by the founder of the Putnam family, many of whose descendants now live in the immediate neighborhood. He said this family had produced many distinguished men, each generation, down to the present time, furnishing its quota. He paid a glowing tribute to Col. Timothy Pickering, who at one time lived on and worked some of those acres. He also referred to our townsman William A. Lander, who for more than thirty years lived on one of those farms, and greatly improved and beautified it by setting out a large number of shade trees, some of which were not natives of these parts, and they are still standing. He also spoke of the poet Whittier, as having lived at Oak Knoll, a place built and improved by Mr. Lander, so named from the fact that many beautiful oak trees grew there. It was at Oak Knoll that Whittier wrote many of his later poems.

After the lecture Mr. Hines exhibited some photographs of houses connected with these acres, one being the fine old Putnam homestead which is still standing.

Monday Evening, April 26, 1897.—Rev. John W. Buckham, of the Crombie Street Church, was to have lectured in Plummer Hall, on "Old Time Salem Clergymen," but at a late hour a note was received announcing the illness of the speaker and no meeting was held.

Monday Evening, May 3, 1897.—Dr. Hasket Derby, of Boston, delivered an illustrated lecture in Plummer Hall, on "A Dead City of the Baltic." This was Wisbuy, the capital of the Island of Gothland, which belongs to Sweden. The speaker had been there and brought away some sixty-five slides and many delightful impressions. It was once the great commercial port of northern Europe, grew vastly rich, built splendid warehouses and churches, and established five hundred years ago a maritime code, quoted ever since as the "ancient and supreme water-law of Wisbuy" and commended by Grotius as of the highest authority almost all over Europe. All that remains of the once "magnificent city of Wisbuy" are the wealth of architectural ruins to be seen there and this wonderful code of laws. Grass grows in the streets and the harbor is deserted. In 1361, Valdemar, a Danish conqueror, sacked the city.

Necrology of Members.

John Israel Baker, son of Joseph and Lucy (Bisson) Baker, was born in Beverly, Aug. 16, 1812; elected a member of the Essex Institute, June 18, 1851 and died in Beverly, Feb. 17, 1897.

Rev. Caleb D. Bradlee, D.D., son of Samuel and Elizabeth D. (Williams) Bradlee, was born in Boston, Feb. 24, 1831; elected a life member of the Essex Institute, Sept. 4, 1894 and died in Brookline, May 1, 1897.

Willard H. Brown, son of Edward and Eunice (Porter) Brown, was born in Plaistow, N. H., Apr. 24, 1823; elected a member of the Essex Institute, Nov. 4, 1879 and died in Salem, May 21, 1896.

James Buxton, son of Amos and Mary (Stone) Buxton, was born in Danvers (now Peabody) Sept. 3, 1832;

elected a member of the Essex Institute, July 23, 1884 and died in Peabody, Feb. 10, 1897.

Benjamin S. Calef, son of John and Rebecca (Shreve) Calef, was born in Saco, Me., Jan. 21, 1835; elected a member of the Essex Institute, Sept. 17, 1894 and died in Boston, Jan. 9, 1897.

G. Winthrop Coffin, son of —— and——(——) Coffin, was born in ——, ——; elected a member of the Essex Institute, July 15, 1895 and died in Aix le Bain, France, Aug. 9, 1896.

Rt. Rev. A. C. Coxe, D.D., son of Rev. Samuel Hawson Coxe, was born in Meadham, N. J., May 10, 1818; elected a member of the Essex Institute, Feb. 3, 1896 and died in Buffalo, N. Y., July 20, 1896.

Frank T. Dalrymple, son of James and Mary A. (Flint) Dalrymple, was born in Salem, Oct. 7, 1851; elected a member of the Essex Institute, July 18, 1887 and died in Salem, May 17, 1897.

Perley Derby, son of Charles and Nancy (Pulling) Derby, was born in Murfreesboro, Tenn., Oct. 26, 1823; elected a member of the Essex Institute, Mar. 8, 1856 and died in Salem, Mar. 28, 1897.

Mary A. Dodge, daughter of James B. and Hannah (Stanwood) Dodge, was born in Hamilton, Mar. 31, 1833; elected a member of the Essex Institute, May 7, 1894 and died in Hamilton, Aug. 17, 1896.

William J. Foster, son of William H. and Laura A. (Ward) Foster, was born in Salem, Aug. 4, 1835; elected a member of the Essex Institute, Feb. 25, 1856 and died in Salem, May 12, 1897.

Daniel B. Hagar, son of Isaac and Eunice (Steadman) Hagar, was born in Newton Lower Falls, Apr. 22, 1820;

elected a member of the Essex Institute, Aug. 9, 1865 and died in Sharon, Aug. 4, 1896.

Mary L. King, daughter of James B. and Mary J. (Fabens) King, was born in Salem, Aug. 11, 1845; elected a member of the Essex Institute, Apr. 30, 1894 and died in Salem, Apr. 3, 1897.

Mary I. Lefavour, daughter of John W. and Emily G. (Hollister) Lefavour, was born in Salem, May 25, 1858; elected a member of the Essex Institute, Mar. 21, 1892 and died in Salem, Mar. 29, 1897.

Caleb W. Loring, son of Charles Greeley Loring, was born in Boston, July 31, 1819; elected a member of the Essex Institute, Sept. 4, 1894 and died in Boston, Jan. 29, 1897.

William H. Lovett, son of Benjamin and Huldah (Lewis) Lovett, was born in Beverly, Dec. 5, 1853; elected a member of the Essex Institute, Aug. 1, 1887 and died in Beverly, Aug. 18, 1896.

John Lowell, son of John A. and Susan (Cabot) Lowell, was born in Boston, Oct. 18, 1825; elected a member of the Essex Institute, Jan. 6, 1896 and died in Chestnut Hill, May 14, 1897.

George E. Pearson, son of Leonard M. and Henrietta (Lancaster) Pearson, was born in Boston, June 18, 1843; elected a member of the Essex Institute, June 18, 1894 and died in Salem, Oct. 28, 1896.

Stephen H. Phillips, son of Stephen C. and Jane A. (Peele) Phillips, was born in Salem, Aug. 16, 1823; elected a member of the Essex Institute, May 8, 1850 and died in Salem, Apr. 8, 1897.

Rev. Alonzo H. Quint, son of George and Sally W. (Hall) Quint, was born at Barnstead, N. H., Mar. 22,

1828; elected a member of the Essex Institute, Nov. 18, 1895 and died in Boston, Nov. 4, 1896.

Charles E. Rea, son of Samuel and Sarah Ann (Webster) Rea, was born in Portsmouth, N. H., Oct. 12, 1845; elected a member of the Essex Institute, Nov. 18, 1895 and died in Danvers, May 1, 1897.

Arthur S. Rogers, son of Richard S. and Sarah (Crowninshield) Rogers, was born in Salem, Dec. 14, 1835; elected a member of the Essex Institute, May 7, 1894 and died in Salem, Feb. 8, 1897.

Addison A. Sawyer, son of Moses and Hannah M. (Rowell) Sawyer, was born in Amesbury (now Merrimacport) Aug. 23, 1834; elected a member of the Essex Institute, Jan. 15, 1894 and died in Salem, Nov. 26, 1896.

Michael W. Shepard, son of Michael and Harriet F. (Clarke) Shepard, was born in Salem, Feb. 28, 1826; elected a member of the Essex Institute, Mar. 4, 1895 and died in Salem, Dec. 2, 1896.

G. Frederick Sibley, son of George and Josephine M. (Ayers) Sibley, was born in Salem, Oct. 15, 1871; elected a member of the Essex Institute, June 4, 1894 and died in Salem, Aug. 13, 1896.

James J. Storrow, son of Charles S. and Lydia (Jackson) Storrow, was born in Boston, July 22, 1837; elected a member of the Essex Institute, Oct. 7, 1895 and died in Washington, D. C., Apr. 15, 1897.

Anna E. Ticknor, daughter of George and Anna (Eliot) Ticknor, was born in Boston, June 1, 1823; elected a member of the Essex Institute, Aug. 5, 1895 and died in Newport, R. I., Oct. 5, 1896.

Francis Tuckerman, son of John F. and Lucy S. (Saltonstall) Tuckerman, was born in Salem, June 11, 1849; elected a member of the Essex Institute, Apr. 30, 1894 and died in Salem, Mar. 31, 1897.

Mrs. Mary A. Turner, daughter of Benjamin P. and Abigail D. (Brown) Kimball, was born in Beverly, May 7, 1828; elected a member of the Essex Institute, May 6, 1895 and died in Marblehead, Jan. 5, 1897.

Charles P. Trumbull, son of George A. and Louisa (Clap) Trumbull, was born in Worcester, Sept. 12, 1830; elected a member of the Essex Institute, Nov. 4, 1895 and died in Beverly, Oct. 8, 1896.

William L. Vinal, son of Moses C. and Sarah (Jenkins) Vinal, was born in New Bedford, Nov. 24, 1854; elected a member of the Essex Institute, Apr. 1, 1895 and died in Boston, Mar. 4, 1897.

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Harlem, Société Hollandaise des Sciences, . . .		5
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Engraver and Printer.
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Home Market Bulletin.
Iowa Churchman.
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Lynn Item.
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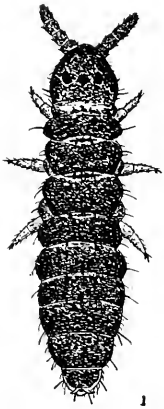
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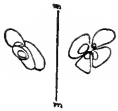
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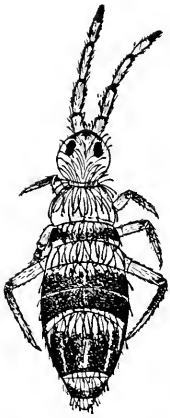
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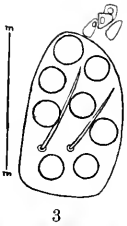
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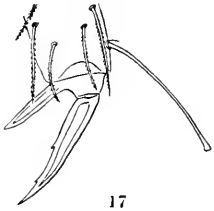
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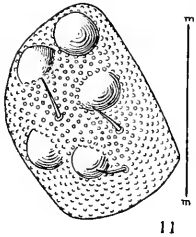
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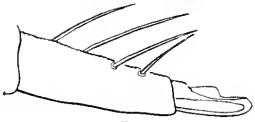
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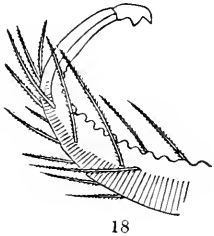
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J. W. Folsom, Del.

JAPANESE COLLEMBOLA.

BULLETIN

OF THE

ESSEX INSTITUTE.

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JAPANESE COLLEMBOLA.

BY JUSTUS WATSON FOLSOM.

THE few forms with which this paper deals will interest entomologists because nothing has hitherto been recorded concerning the Collembola of Japan. My friend, Dr. Seitaro Goto, was so good as to collect three species for me in Tokyo, which were kindly brought by Professor Mitsukuri, of the Imperial University. Thanks to the care with which the specimens had been killed and preserved, they arrived in excellent condition and, therefore, were not difficult to study. All these species prove to be new and are here named *Achorutes communis*, *Xenylla longicauda* and *Seira japonica*. Many of the types have been deposited in the Museum of Comparative Zoölogy at Cambridge, Mass.

I may take this opportunity to state that *Lepisma* occurs in Tokyo, according to Dr. Goto, and Professor Mitsukuri informs me that *Campodea* is found in Japan, as might be expected.

Family **PODURIDÆ** Tömösvary.

Genus **ACHORUTES** Templeton.

Achorutes communis, n. sp.

General color (Figs. 1 and 2) blackish gray, flecked with pale gray; the sternum, legs, furcula and intersegmental regions are pale gray, which is the real ground color. A dorsal, interocular, black patch is present. Eyes (Fig. 3) eight on either side, situated upon a black patch. Postantennal organs consisting of four elevations (Figs. 3 and 4), which are very variable in form and arrangement; Fig. 4, showing these organs from the right and left sides of the same head, exemplifies this variability. Antennæ subequal to the head, in length, and stout (Fig. 5); segments, in relative lengths, as 6 : 7 : 8 : 10; basal segment compressed longitudinally; second, barrel-shaped; third, swollen apically; terminal segment conical and blunt. Body cylindrical, its segments mostly subequal; between the more anterior segments are transverse, dorsal, lozenge-shaped areas of pale gray (Fig. 1) each containing a narrow, blackish band; blackish dorsal and subdorsal stripes are more or less evident. The head and body are tuberculate, as usual, and are clothed with numerous short, curved bristles, which are sparsely interspersed with longer, stiff setæ. Legs stout, feet biunguiculate (Fig. 6). Superior claw stout, curved, unidentate; inferior claw half as long, with broad base and acuminate apex; a single tenent hair is present. Ventral tube stout, emitting two rounded tubercles. Furcula (Fig. 7) short and stout;

manubrium (basal segment, Fig. 2) swollen; dentes (intermediate segments, Fig. 7) stout, slightly tapering, with stiff bristles; mucrones (apical segments) half as long as the dentes, concave, in form as represented in Figs. 7 and 8. Anal spines (Figs. 1, 2 and 9) two, subequalling the superior claws in length, curving forward and seated upon tuberculate papillæ, the bases of which are contiguous.

Length 1.3 mm. I have examined over three hundred examples of this species, which Dr. Goto found on the surfaces of pools and wells during wet seasons.

A. communis is most nearly allied to *A. armatus* Nic.[1] but I have compared the Japanese form with European examples of *armatus*, which were sent to me by Dr. C. Schäffer, of Hamburg, and find the two forms to be unquestionably distinct. They are separated by considerable differences in form of body, coloration, shape of inferior claws, mucrones and post-antennal organs and arrangement of the eyes.

A. communis also bears much resemblance to *A. longispinus* Tull.[2]

Genus **XENYLLA** Tullberg.

Xenylla longicauda, n. sp.

General color (Fig. 10) dark indigo blue, mottled with yellowish-white, which is the ground color; dorsum with two interrupted black stripes, subdorsal in position; also a black transverse streak in each intersegmental region; sternum yellowish-white, mottled with dark blue. Eyes (Fig. 11) five on either side, hemispherical, seated upon convex, minutely tuberculated, black patches, which are narrowly encircled with white.

[1] Nicolet '41, p. 57, pl. 5, fig. 6; Tullberg '72, p. 51, taf. X, figs. 23-25; Lubbock '73, p. 180–181, pl. 40; Tullberg '76, p. 38, taf. 10, fig. 35; Schäffer '96, p. 173, taf. II, figs. 31, 46 and taf. III, fig. 60.

[2] Tullberg '76, p. 37, taf. X, figs. 31-34; Schäffer '96, p. 191, taf. II, figs. 44, 45.

Postantennal organ absent. Antennæ subequal to the head, in length, with segments in relative lengths as 7 : 8 : 9 : 9; basal segment stout, globose or compressed (Fig. 12); second, swollen apically; third, more slender, cylindrical; terminal segment conical. Body cylindrical-ovate, the abdomen being much dilated laterally; the segments, measured along the median dorsal line, are related in length as 4 : 6 : 6 : 7 : 7 : 6 : 9 : 6 : 3; the head and body are clothed with minute bristles, interspersed with a few longer setæ. Legs stout; tibiæ (Fig. 13) with two, minutely-knobbed, tenent hairs; feet uniunguiculate; claw stout, uniformly tapering, slightly curved and untoothed; inferior claw represented by the merest rudiment. Furcula (Fig. 14) extending considerably beyond the abdomen; manubrium triangular; dentes tapering, each with two setæ; mucrones one-third longer than the dentes, clearly articulated with the latter, very slender, gradually tapering to a minute point. Anal spines and papillæ are quite absent.

Length 1.4 mm. Described from forty-two types, which Dr. Goto found "between the scales of old pine-cones, June 24, 1897."

X. longicauda is decidedly unlike any hitherto described species of Xenylla, but is nearest related to *X. humicola* O. Fabr. (1780, p. 213–214, *Podura humicola*). *X. longicauda*, as contrasted with this near ally, has a furcula which is relatively much longer and much more slender, also mucrones which considerably exceed the dentes in length; moreover there are no traces of anal spines or papillæ, which, although reduced in certain species, nevertheless occur in all other known species of Xenylla.[1]

[1] For descriptions and figures of *X. humicola*, consult O. Fabricius 1780, p. 213–214; Tullberg '76, p. 39, taf. X, figs. 44–46; Reuter '95, p. 32, tab. 2, fig. 10; and Schäffer '96, p. 169–170, taf. 2, fig. 43.

X. longicauda also approaches *X. affinis* Schäffer ('97, p. 10, taf. 1, fig. 17), which differs from both *longicauda* and *humicola* principally by possessing much stouter and unidentate claws, as well as three tenent hairs.

Family **ENTOMOBRYIDÆ** Tömösvary.

Genus **SEIRA** Lubbock.

Seira japonica, n. sp.

Color, ochre yellow, with broad, blackish-purple bands, commonly as represented in Fig. 15; occasionally, every segment of the body possesses a blackish band. Head yellow, bordered anteriorly, and sometimes posteriorly, with black. Eyes normal. Antennæ (Fig. 15) almost half as long as the body, with segments in relative lengths as 7 : 12 : 13 : 14, densely hairy, and yellow with purple apices. Pronotum yellow, frequently marked with black; mesonotum not projecting, yellow, often narrowly bordered with black; metanotum yellow, with an ill-defined band; first abdominal segment usually yellow, but sometimes banded behind, like the remaining segments; each band is generally indistinctly limited anteriorly; second and third abdominal segments mostly black, or else yellow anteriorly; fourth, yellow in front only and with three yellow stripes behind, one being dorsal and two subdorsal in position; fifth, yellow anteriorly; sixth, yellow, sometimes blackish behind. The entire dorsum is abundantly clothed with bowed, clavate hairs, interspersed with short, simple bristles. Scales are present, in addition, which are symmetrical (Fig. 16) elliptical, with a minute rounded pedicel, acute apex and fine longitudinal ribs. Under a one-eighteenth homogeneous immersion objective, the markings are seen to be linear, almost as long as the scale and broadening slightly at their distal portions. Although my specimens were in

alcohol, numerous scales had nevertheless remained attached to the dorsal part of the body which were very constant in size and form. Legs densely bristly, mostly pale yellow; coxæ with a few clavate hairs; femora often purple apically; tibiæ purple basally; hind tibiæ long and slender. Superior claw (Fig. 17) slender, tapering, almost straight, bidentate; inferior claw half as long, broadly linear, acute; tibiæ provided with barbellate bristles and a single, clubbed tenent hair. Furcula half as long as the body, densely covered with clavate hairs proximally and with barbellate bristles distally; segments as 21 : 25 : 2, in relative lengths; dentes (Fig. 18) crenulate, bare distally, and strongly curved (but usually less curved than is represented in Fig. 18); mucrones (Fig. 18) bidentate, as in Entomobrya.

Length, 1.8 mm. Described from nine types, which Dr. Goto found between the scales of old pine cones, under and upon the bark of various kinds of tree, and in the house, occurring during the warmer part of the year.

Seira japonica appears to be nearest allied to a species from Sumatra, *S. annulicornis* Oud., as well as I can judge from the brief description which Oudemans gives ('90, p. 87–88). In his species, however, the terminal antennal segment is much longer, the segments having the ratio 7 : 13 : 12 : 19; the superior claw of *S. annulicornis* is tridendate and the furcula is relatively longer, with its segments related in length as 54 : 54 : 2. In addition, the difference in coloration is decided.

EXPLANATION OF PLATE.

Fig. 1. *Achorutes communis*, n. sp. Dorsal aspect, ×41.
Fig. 2. " " " Left aspect, ×41.
Fig. 3. " " " Eyes and postantennal organ of the right side, ×330 (m–m is parallel with the median line).
Fig. 4. *Achorutes communis*, n. sp. Postantennal organs of the same head, ×330.

Fig. 5. *Achorutes communis*, n. sp. Dorsal aspect of right antenna, × 87.

Fig. 6. *Achorutes communis*, n. sp. Lateral aspect of left hind foot, × 397.

Fig. 7. *Achorutes communis*, n. sp. Mesal aspect of right dens and mucro, × 397.

Fig. 8. *Achorutes communis*, n. sp. Concave surface of right mucro, × 397.

Fig. 9. *Achorutes communis*, n. sp. Lateral aspect of left anal spine, × 397.

Fig. 10. *Xenylla longicauda*, n. sp. Dorsal aspect, × 41.

Fig. 11. " " " Eyes of left side, × 330.

Fig. 12. " " " Dorsal aspect of left antenna, × 87.

Fig. 13. *Xenylla longicauda*, n. sp. Lateral aspect of right fore foot, × 397.

Fig. 14. *Xenylla longicauda*, n. sp. Dorsal aspect of furcula when extended, × 397.

Fig. 15. *Seira japonica*, n. sp. Dorsal aspect, × 21.

Fig. 16. " " " Scale, × 397.

Fig. 17. " " " Mesal aspect of right hind foot, × 397.

Fig. 18. *Seira japonica*, n. sp. Dens and mucro, × 397. (The dens is usually less curved.)

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BIOTITE TINGUAITE DYKE ROCK. CATALOGUE NO. 960.

BY JOHN H. SEARS,

Curator of Geology and Mineralogy, Peabody Academy of Science, Salem, Mass.

OCCURRENCE, ETC.

In the latter part of July, 1896, while investigating the ægirine syenite rocks at Manchester, Massachusetts, I discovered at near low water mark on Gale's rocks, two hundred yards south of Gale's point, a dyke of a very peculiar color, and from a macroscopical examination I decided that it was a new addition to the previously described rocks of Essex County. The dyke is six inches wide and is exposed for twenty feet. It is seen cutting the augite syenite in a nearly horizontal position six feet below the surface of the syenite mass. This outcrop is only exposed at low water as at high water the entire syenite ledge is submerged. The color of this dyke is, on the surface, a grayish green, mottled with bluish-black spots, a freshly broken surface is olive green color and the spots are black. Its occurrence in the immediate region of the ægirine tinguaite dyke at Pickard's point,[1] "analcite tinguaite," Dr. Henry S. Washington,[2] and of the ægirine

[1] J. H. Sears, Bulletin Essex Institute, Vol. XXV, 4, 1893.

[2] H. S. Washington, American Journal of Science, Vol. VI, pp. 182-187, 1898.

DYKE OF BIOTITE TINGUAITE, IN AUGITE SYENITE LEDGE, MANCHESTER, MASS.

syenite at Gale's point, gave this rock a special interest to me, and I collected several specimens of it as addition to the collection of the rocks of Essex County, in the cabinets of the museum of the Peabody Academy of Science and for special study. In October, 1896, I prepared six thin sections of this rock for microscopical examination, and from these sections I determined the following minerals in its composition : ægirine, nepheline, sodalite, biotite, a triclinic feldspar, microperthite, and some larger feldspars that gave optical characters which led me to consider them anorthoclase, as they had nearly the same structure as the anorthoclase phenocrysts in the keratophyre rock from Marblehead harbor.[1] The black spots in the rock were magnetic iron, a decomposition product of an original biotite. The ground mass was so associated with fragments and grains of ægirine, and microliths of feldspars, that it was deemed necessary to have a chemical analysis made of the rock before determining it. In May, 1897, I showed the specimens and thin sections of this rock to Dr. J. E. Wolff at Harvard University, and told him my conclusions as to what it was ; subsequently the specimens and sections of this dyke rock were placed in the hands of Dr. Arthur S. Eakle of the Petrographical Laboratory at Harvard University to investigate and analyze.

Dr. Eakle has worked out a very careful and minute microscopical and chemical analysis of this interesting dyke rock which is as follows :—

Macroscopically the rock has a compact holo-crystalline structure, breaking with an even fracture ; and a greenish gray color with a slightly greasy luster, like rock rich in nepheline. Small phenocrysts of feldspar are scattered throughout and also much magnetite in patches which latter give a mottled appearance to the rock.

[1] J. H. Sears, Bull. Mus. Comp. Zoology. Geographical series, Vol. No. 9, 1890.

Under the microscope the rock is seen to be composed mainly of feldspathic laths and plates with much nepheline and less amounts of ægirine, magnetite and biotite. A little sodalite, apatite and zircon are also present.

The feldspar forms the principal constituent and predominates in lath-shaped sections, which have a ragged appearance, due to frayed-out ends and a fibrous structure. This fibrous appearance is caused by lamellar intergrowths of the soda and potash feldspars, microcline and albite, forming microline-microperthite. Some of the broader sections show a rather coarse intergrowth of the two feldspars giving extinctions on different parts of the same section, corresponding respectively to these two feldspars, while some which do not show the perthitic structure may be anorthoclase. Carlsbad twinning of the laths is common. Besides the lathshaped sections, many plates occur, which are cleavage sections parallel to M, of albite. They show basal and prismatic cleavage cracks, an optic axis and extinguish at 20°.

The nepheline occurs next to the feldspars in amount, and occupies the position of a filling matter in the interspaces formed by the feldspars. It has been the last mineral to form and most of it is in xenomorphic angular sections, but here and there, well defined hexagonal plates are seen. The nepheline has altered and is present as grayish, muddy, granulated sections which are apparently mixtures of nepheline with kaolin and very fine grains of quartz; the alteration being to a hydrous aluminium silicate through loss of alkalies, rather than to a zeolite. The sections still retain their index above that of the feldspars and gelatinize with HCl as shown by fuchsin staining, yet this reaction was not so well and easily obtained as with fresh nepheline.

Ægirine is disseminated in the rock in fragments and

small crystals, in sufficient amount to give the rock its greenish cast. Its crystallization preceded that of the feldspars and the crystals are rounded or broken, irregular fragments. The sections occur from deep grass green to almost colorless, and the deeper colored show a marked pleochroism a = bluish green, b = grass green, c = greenish-yellow. The axis of greatest elasticity lies nearest to c and the extinction in most of the sections is practically parallel.

Magnetite is prominent and marks the remains of rather large plates of a former dark silicate. Most of the original silicate has completely disappeared, leaving only the patches of black oxide of iron, but in an occasional section, a greenish-brown silicate still remains between the black borders of magnetite, which from its absorption, parallel extinction and characteristic shimmer, is evidently biotite. From the similarity of the sections, it is reasonable to assume that they were all originally this biotite, and if so it must have been a biotite very poor in magnesia, since so little of this oxide occurs in the rock.

Sodalite is seen in small purplish to colorless isotropic sections of low refraction, some showing dodecahedral cleavage lines. A few small crystals of apatite and zircon occur as inclusions in the feldspars.

The tinguaite dike at Pickard's Point, Manchester, originally described by Sears,[1] has been shown by Washington[2] to contain much analcite and he classifies the tinguaites of this locality as analcite tinguaites. Very little isotropic mineral occurs in the dike described here and from its appearance and the presence of chlorine what is present is judged to be sodalite, so the dike can hardly be classed with the one he describes.

[1] J. H. Sears, Bull. Essex Inst. XXV, 4, 1893.
[2] H. S. Washington, Am. Jour. Sci. VI, 1898, p. 176.

The structure of the rock also differs from that of the Pickard's Point dike, which has the typical tinguaitic structure, in that the component minerals do not occur in needle forms, but in much stouter lath-shapes, showing a greater degree of crystallization for the individual minerals, and producing a much less dense phase of tinguaite. The presence of many plates of feldspar tabular to M indicates an approach to a sölvsbergite, and the rock might perhaps with equal right be considered a phase of a nepheline sölvsbergite. It seems in structure and composition to lie intermediate between a nepheline tinguaite and a nepheline-ægirine-sölvsbergite.

The analysis of the rock yields

SiO_2	60.05
Ti O_2 and ZrO_2	0.11
Al_2O_3	19.97
Fe_2O_3	4.32
Fe O	1.04
Mn O	0.79
Ca O	0.91
Mg O	0.23
K_2O	3.24
Na_2O	7.69
H_2O at 110	0.15
H_2O ig.	1.26
Cl	0.28
	100.04

The specific gravity determined by the balance is 2.708. The dike is difficult to reach and the specimens examined come from near the surface and have altered enough to make it difficult to estimate the mineral contents with any degree of accuracy. It is at once apparent that the percentage of alkalies is too low to use up

all of the silica and alumina in the formation of the alkali minerals, and the excess of these two oxides must evidently combine with the water to form kaolin, leaving besides a small excess of free silica, which is seen in the slide as a separation product from the alteration of the nepheline. Fully twenty per cent of the slide appears to be nepheline, yet the soda will only allow for about one-half of this amount, and fourteen per cent only of the rock is soluble in HCl. A calculation from the percentage composition, with due regard to the microscopic estimation, gives the following as the approximate mineral composition:

47.16 $Na_2 Al_2 Si_6 O_{16}$	
16.68 $K_2Al_2 Si_6 O_{16}$	67.28 % feldspar.
3.44 $CaAl_2 Si_2 O_8$	
9.61 $Na_6 K_2 Al_8 Si_9O_{34}$	
8.09 $H_4 Al_2 Si_2 O_9$	20.32 % nepheline, kaolin and quartz.
2.62 SiO_2	
6.00 $Na_2 Fe_2 Si_4 O_{12}$ =	6.00 % ægirine.
2.90 Biotite.	
3.50 $Fe_2 O_3$ (Fe Mn) O	6.40 % biotite and magnetite.
100.00	100.00

PLATE.

Biotite tinguaite dyke cutting augite syenite.

The dyke may be detected near the bottom of the ledge by my note book at near one end and on the other by a Boston and Maine railroad time table placed in the contact walls where the dyke has been eroded out.

SALEM, AUG. 21, 1898.

BATTLES OF THE BLACK ANTS.

BY REV. W. P. ALCOTT.

THE wood borings of *Formica Pennsylvanica* L. are often wonderful. Sometimes these insects will form, in a soft pine log, a maze of halls, chambers, corridors, and spiral passages, separated by walls little thicker than paper, and altogether of great architectural beauty and finish.

But attention is now to be called to another line of activity conspicuous in these insects. If investigation of their singular conflicts has been made, it has not happened to attract my notice. The following observations are recorded that they may incite some young Lubbock or McCook to find the cause and purpose of these wars.

On the morning of June 26, 1883, I observed numbers of large black ants wandering excitedly over a back piazza of my house in Boxford, Mass. More careful observation showed a dozen of their dead bodies scattered around, while two living insects were struggling in a desperate conflict. In some places dissevered legs and antennæ were thickly strewn, while in retired nooks living ants were resting, either exhausted, wounded or skulking. I gathered over twenty corpses from the piazza and the ground. Some of these warriors, having mutually in-

flicted mortal wounds, had never relaxed their iron embrace but lay dead in pairs.

The conflict was not yet ended and I watched one of these Homeric encounters. An ant had his antagonist's feeler in his jaws. The combatant, thus held, twisted and turned to get his own mandibles upon feeler, leg, neck or waist of his antagonist. He was, evidently, much unnerved by the other's hold, for these antennæ seem as sensitive as the eyeball, and he was dragged about, resisting and struggling in every way, but all in vain. Finally, the antenna came off near the base and the two warriors parted.

Single combats like this probably went on through the day and a few occurred the following night, for in the morning I found more dead bodies. One wounded soldier died in my custody and many doubtless in cracks and nooks, but the level floor seemed to be the main battlefield. Altogether I collected from the fight about seventy complete bodies or dissevered heads which I preserved in a red pill box—the rather gaudy tumulus of this Waterloo!

In the same place on the morning of July 7, following, I found traces of another battle which was not yet finished. Again, July 19, there had been a battle during the night on the bare floor of a chamber at the opposite end of the house and upstairs. One morning in August, of the same year, I found traces of a similar battle in the cellarway of a neighboring house.

Recurring to the conflict of July 7, I may give from notes made at the time, a more particular description. The ants engaged were evidently workers of the two kinds, having either large heads or small ones — megacephalic or microcephalic. I observed especially a struggle between one of each kind whom I may call for brevity, Meg and Mic, or Mike, abbreviations of the above tech-

nical words. The latter was then alone, all the others being large-headed and seemingly bent on his destruction. But Mike was undaunted and full of fight in spite of being alone among numerous big-headed foes. Indeed, the latter seemed generally afraid to get too near him. At length one of them ventured to clasp jaws, which seems to be the "first hold." Then the two began to bend their tails as if to sting or to inject poison into one another's mouth, an issue which each endeavored to prevent. Other ants attacked Mike, pulling upon his legs and attempting to fasten upon the connection of his abdomen. Meg dragged Mike about, both at times apparently attempting to sting. Mike was dying in half an hour, probably from exhaustion or poison.

Later two dropped from overhead in energetic and deadly conflict — not ceasing under my capture and observation of them. These also were a Meg and a Mike. The former, as before, was stronger, the latter more active and ferocious. He had Meg by an antenna, but Meg pulled him around, Mike keeping his abdomen so curled as to prevent his antagonist's jaws from a fatal grip on his slender waist. Mike had already lost half of one foreleg and all of a middle one. Meg was minus one entire front leg and was lame in a leg of the next pair, but he was biting vigorously, though in vain, at Mike's hard and polished abdomen. At last Meg's feeler parts where the other has hold and Mike clutches the tip of the remaining feeler. This quickly gives way and he seizes the base, while a small colorless drop exudes from the broken end. Now this antenna parts at the base and, after having fought twenty minutes under my eye and perhaps previously much longer, they separate, the advantage being with Mike. Though confined together, they did not care to fight again. One died during the following night and the other

several days later, perhaps from some abnormal condition of his confinement. Unfortunately, I did not note which died the sooner, but probably it was Meg, who was more injured.

Often since the above observations, I have noticed, about another residence, the corpses left by similar encounters of these ants but I have discovered no additional facts. No similar battles of our other Massachusetts species have ever come under my observation.

Some twelve or fifteen years ago an anonymous correspondent of the St. Louis Republican described a battle of ants in southwestern Missouri. Evidently these were our "black ants." The account tallies so exactly with what I have seen in our own county, that I quote it entire, as follows:

"I am a pedagogue in the rural districts of Newton County, Missouri, and my schoolhouse had been infested for several months by a species of a large black ant, much to the annoyance of the little barefooted scholars, and there seemed to be no way of getting rid of the pest. But what was my astonishment a few mornings since on coming into my school-house, to find the floor literally strewn with dead and dying ants, and upon a closer examination to find that a desperate battle was then raging among them more sanguinary and fatal than any I ever witnessed (and I saw many a hard-fought battle during the late unpleasantness) or read of [in the annals of history]. A much larger number were lying dead than were left engaged, and I therefore concluded the battle had raged all night. Most of the combatants engaged were grappled in a deadly embrace, while others but recently commenced were standing erect on their hind legs, and soaring for the advantage with all the science of the most experienced swordsmen or pugilists. The most fatal point of attack,

and the one for which it seemed all contended, was the ligament which joined the main body with the head. This vital member once seized by the powerful nippers, death succeeded without a struggle, and the victor was ready and eager for another engagement.

No undue advantage was taken by either party; and no two would endeavor to overpower a single one; nor was there any flinching or wavering in a single instance, for whenever two belligerents met it was certain death to one or both parties. Never, perhaps, were two armies more equally matched in numbers, strength and valor; and consequently at the close of the battle, which lasted two nights and a day, as new recruits continued to arrive at every moment, there were but few left, and probably none of the vanquished army, thus rivalling the valor of the heroes of the Alamo and the Spartan band of Leonidas. Observing closely, I could see a slight difference in the appearance of the contestants, one set being perfectly black, with a large head, while the other was nearer brown, with a smaller head, though both about equally matched in size and strength. Dismembered legs were numerous, and many an unfortunate though valiant hero, being entirely deprived of his supporters, was thus left, *hors de combat*, to die on the field. The next morning I swept up the dead and dying of both armies (for I would not disturb them while engaged), amounting to thousands."

In view of the facts given, my own suggestions are now added. That the maiming alone does not always cause the death of these ants is evident. Unless I am greatly in error, experimenters have proved this by clipping off antennæ or legs. Death does not follow for several days at least, and then perhaps from inability to obtain food or drink. Indeed, I observed an ant running about for a long time with his abdomen bitten off or hanging only by

a filament drawn out so that his stomach was upon his shoulders — where perhaps some of us ought to have it! For all this, the ant was very lively and did not appear to suffer. Again combatants will sometimes die in a few minutes with no wound that a microscope can discover.

It is possible that death is caused by the injection of formic acid, saliva or some other natural secretion into the wounds or mouth. It is admitted, I believe, that animal products take on specially poisonous properties under the influence of rage.

It was astonishing to note the desperation of the encounters. Sometimes others interfere in these dual conflicts as in one case cited above, though this appears exceptional. When two ants grapple it means the death of one or both. Many pairs were found locked in an embrace mutually fatal. Others are seen running around with the dissevered head of an antagonist locked in its final grip upon an antenna or leg. Such a warrior would not loosen his hold though his enemy or some comrade should succeed in his decapitation. The trophy may be "glorious," but it is quite an incumbrance and the bearer tries in vain to secure relief from his ornament.

As to the cause of these battles, I can make no conclusive suggestion. It is, of course, not to be supposed that the insects of the formicary have discovered, as man has, that by such sanguinary conflicts, great questions of ethics and property rights may be settled with infallible exactness!

There is said to be great diversity in the social economy of different species of Formica. With some kinds there are battles between rival nests, but I could discover no evidence of this in the cases mentioned. From the impossibility of finding the houses of these wood-borers, my opinion may not be correct. But the slow accumulation of the slain and the insignificance of the numbers at any

one time seen in conflict suggested some other cause than hostile colonies, or a struggle for booty.

Contrary to the Missouri testimony, my pill-box mausoleum shows that the struggles were *not* uniformly between the large-headed and the small-headed ants. Often two of the former or two of the latter are locked in the final clasp. I could discover no rule of difference in size or color.

All these conflicts, I believe, began in the night — usually, if not always, on sultry nights. There may be a kind of craziness, a propensity to "run amuck," which at times seizes a part or all of the workers of a formicary. Some ants were generally recognized as friends, some as enemies. Is it a witchcraft delusion?

My present residence was built in 1770 and early in summer is seriously infested with these insects. Later they are rarely seen in the house. Is it possible that these battles are due to some Malthusian instinct by which, when their services are no longer needed, the great mass of the soldier and worker class slay one another and thus empty the formicary that there may be room and welcome for another generation? Or is there a survival, in this way, of the young and vigorous? Some of the questions suggested can be finally answered only by the carefully recorded observations of many independent and skilful students of nature.

SOME GLACIAL WASH-PLAINS OF SOUTHERN NEW ENGLAND.[1]

BY J. B. WOODWORTH.

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INTRODUCTION.

THE glacial wash-plains or stream deltas and fans of southern New England constitute by far the most important feature in the pleistocene deposits of the area, for the reason that they cover the larger part of the lowlands; on these flat spaces the greater number of towns and villages are built; the sands and gravels determine the nature of most of the problems of local water-supply and drainage; and because of their scientific bearings in determining the history of the glacial retreat across this portion of our country, as well as in the evidence they are thought to afford concerning the attitude of the land and sea at the close of the Glacial Period. The notes which are here brought together present but a crude outline of the results which may yet be gained in this field by a careful mapping and investigation of these old glacial stream deltas. These glacial deposits remain almost as sharply defined as when abandoned by the ice. The growth of forests and the development of swamps in the low wet grounds alone offer difficulties to the rapid and satisfactory interpretation of the glacial history of the district.

The writer has had the opportunity of examining those portions of this area which lie within the geologic field known as the Narragansett Basin of Carboniferous rocks and the islands off the south coast. Some of the leading facts concerning wash-plains occurring about Narragansett Bay have already been published as noted in the annexed references to the literature.

BIBLIOGRAPHY.

The following references include those papers which relate to the country lying south of a line drawn from Boston to Worcester and east of Connecticut. A few papers relating to the New Haven region are added.

1856. Prof. Edward Hitchcock,[1] in describing the surface geology of New England, refers to gravelly and sandy plains of the lowlands as "sea-bottoms."

1879. Mr. Warren Upham,[2] in a paper on "The formation of Cape Cod," discusses the leading facts in the moraine of that stage.

1880. The same author[3] later discusses "The succession of glacial deposits in New England."

1881. Mr. Upham[4] describes "The Glacial Drift in Boston and Vicinity."

1883–84. The late Professor J. D. Dana, in a paper under the title of "Phenomena of the glacial and Champlain Periods about the mouth of the Connecticut Valley, in the New Haven region,"[5] gives a detailed map of the glacial sand-plain about New Haven with elevations and discusses the origin of the plain and its features. He refers the deposit to coalescing sand-bars formed by flooded waters in the valley during the retreat of the ice-sheet. Deep depressions in the plain are ascribed to lack of deposition. It was held that the ice had vanished from the district when the plain was deposited.

1888. Professor Shaler[6] made a report on the Geology of the Island of Martha's Vineyard, in which he describes the large outwash plain or frontal apron, ascribing it to

[1] Illustrations of Surface Geology, 1856, p. 44.
[2] Am. Nat. vol. XIII, 1879, pp. 489–502; 552–565.
[3] Am. Assoc. Adv. Sci. Proc. vol. XXVIII, pp. 299–310.
[4] Proc. Boston Soc. Nat. Hist. vol. XX, pp. 220–234
[5] Am. Journ. of Science, vol. XXVI, 1883, pp. 341–361; and vol. XXVII, pp. 113–130.
[6] 7th Annual Report, U. S. Geol. Survey, pp. 314–320.

deposition from subglacial streams discharging their load of sand and gravel below sea-level. The creases are explained as due to initial shaping by the outrunning streams and to subsequent modification by the to-and-fro movement of tides. The depth of water, not definitely determined, is thought to have been as great as 300 feet.

1889. Professor Shaler,[1] in this year, published a report on the Geology of Nantucket, in which he describes the outwash plain of that island, notes its surface features, including the creases, and discusses the relations of the head of the plain or terrace to the currents which deposited the detritus in the plain.

1890. Professor Davis,[2] in a paper "On the Structure and Origin of Glacial Sand-plains," gives a critical study of an esker-fan near Newtonville, Mass.

1891. Mr. Upham,[3] in a paper entitled "Walden, Cochituate and other lakes, enclosed by modified drift," describes certain ice-block holes in this area.

1892. Professor Davis,[4] in a paper "On the Subglacial Origin of certain Eskers," considers sand-plateaus as deltas marginal to the ice-sheet.

1893. Professor Davis,[5] in a publication entitled "Geographical Illustrations," notes the occurrence and influence of numerous sand-plains on settlement in this district.

1893. Dr. F. P. Gulliver[6] describes a model based upon the esker-fan at Newtonville previously described by Professor Davis. A second model is introduced to show supposed relations of the ice-front to the delta.

[1] Bulletin 53, U. S. Geol. Survey.

[2] Bull. Geol. Soc. Amer., vol. 1, pp. 195-202, pl. 3.

[3] Proc. Boston Soc. Nat. Hist. vol. XXV, pp. 228-242.

[4] Proc. Boston Soc. Nat. Hist. vol. XXV, 1892, pp. 477-499.

[5] Geographical Publications. Published by Harvard University, Cambridge, Mass., 1893, pp. 46. Reprinted from the Proceedings of the Am. Institute of Instruction, 1892.

[6] The [Chicago] Journal of Geology, vol. 1, 1893, pp. 803-812.

1893. J. B. Woodworth,[1] in a paper entitled "An attempt to estimate the thickness of the ice-blocks which gave rise to lakelets and kettle-holes," mentions several glacial lakelets in the sand-plains of this district, and discusses the bearing of outlet creases to marine submergence.

1896. J. B. Woodworth[2] describes "The Retreat of the Ice-sheet in the Narragansett Bay region," enumerating several successive lines of sand-plains in southeastern Massachusetts and Rhode Island.

1896. In a later note[3] the last author gives reasons for thinking that certain sand-plains in the Narragansett Bay region were deposited above sea-level.

1896. Prof. W. O. Crosby and Mr. A. W. Grabau[4] refer certain wash-plains in Hingham and Weymouth to deposition in a lake held up by the retreating ice front.

1896. Messrs. Shaler, Woodworth and Marbut, in a paper on "The Glacial Brick-clays of Rhode Island and southeastern Massachusetts," describe some of the wash-plains and attendant clay deposits of this area.[5]

1898. Mr. M. L. Fuller[6] writes on "The Champlain Submergence in the Narragansett Bay Region," and attempts to show that wash-plains in that area were deposited at sea-level.

1898. Professor Shaler,[7] in a paper on the "Geology of the Cape Cod District," describes the moraines and underlying deposits.

1899. J. B. Woodworth[8] publishes "The ice-contact

[1] Am. Geol. vol. XII, 1893, pp. 279–284.
[2] Am. Geol. vol. XVIII, 1896, pp. 150–168.
[3] Am. Geol. vol. XVIII, 1896, pp. 391–392.
[4] Abstract in Science III, 1896, pp. 212–213.
[5] 17th Annual Report, U. S. Geol. Survey, pt. I, 1896, pp. 951–1004.
[6] Am. Geol. vol. XXII, 1898, pp. 310–321.
[7] 18th Annual Report, U. S. Geol. Survey, 1898, pt. II, pp. 497–593.
[8] Am. Geol. vol. XXII, 1899, pp. 80–86.

in the classification of glacial deposits," based upon a study of the glacial deposits in this field.

THE WASH-PLAINS OF EXISTING GLACIERS.

Existing glaciers present two general types of wash plains which may be briefly described as follows. First, in the case of valley glaciers, where the ice front commonly rests upon a slope high above base-level, the gravel and sand washed out from the ice accumulate in a sheet or fan below the base of the ice. Such is the case with the debris washed out from the glaciers of Chamonix in France. It is a characteristic of glaciation in a mountainous or upland region.

Where the ice spreads out on the lowland, we have the second case, in which, owing to delta building in lakes or the sea or upon a plain, the wash accumulates in front of the ice as a fan of gentle slope banking up against the ice margin.

Probably in all cases where the term plain is used, the form is that of a fan or a group of fans; and from these almost level-topped deltas to steeper sloping deposits and to cones there is a gradual passage. The term *plains* is thus only roughly correct when applied to the group of deltas which have accumulated at the ice-front.

This second group of deposits is found to-day in process of formation only in high latitudes. Examples are here cited for comparison with New England cases.

The Heard Island wash-plain.— A graphic account of an outwash plain now in process of formation is given by the late Canon Moseley in his description of Heard Island at the time of the visit by the Challenger. Heard Island lies in about lat. 53° 10′ S., and long. 73° 31′ E. The following is abstracted from Moseley's account:[1]

[1] Notes by a Naturalist, made during the Voyage of the Challenger. Revised ed., New York and London, 1892, pp. 191–192.

"The view along the shore of the successive terminations of the glacier was very fine. I had never before seen a coast-line composed of cliffs and headlands of ice. The bases of their cliffs rested on the sandy beach and were only just washed by the waves at high water or during gales of wind. The lateral moraines were of the usual form, with sharp ridged crests and natural slopes on either side. They formed lines of separation between the contiguous glaciers. They were somewhat serpentine in course, and two of them were seen to occur immediately above points where the glaciers were separated by masses of rock *in situ*, which masses showed out between the ice cliffs on the shore and had the end of the moraines resting on them.

"A stretch of perfectly level black sand about half a mile in width forms the head of the bay and intervenes between the glaciers and a promontory of rocky rising land stretching out northwards and westwards, and forming the other side of the bay. It was on the smooth sandy beach bounding this plain that we landed. The surf was not heavy, but we had to drag the boat up at once . . . The sandy plain stretches back from the bay as a dreary waste to another curved beach at the head of another inlet of the sea. Behind this inlet is an irregular rocky mountain mass forming the end of the island, on which are two large glaciers very steeply inclined, and one of them terminating in a sheer ice-fall . . . The plain is traversed by several streams of glacier water coming from the southern glaciers. These streams are constantly changing their course as the beach and plain are washed about by the surf in heavy weather. At the time of our visit, the main stream stretched across the entire width of the plain and entered the sea at the extreme western verge of the beach. We therefore had to ford it.

"The stream was about twenty yards across and knee deep. It was intensely cold, and pained my legs worse than any glacier water I have ever waded in. The water of the stream was brown, opaque and muddy, charged with the grindings of the glaciers. Running into the sea it formed a conspicuous brown tract, sharply defined from the blue-green water of the sea, and extending almost to the mouth of the bay. The sandy plain seemed entirely of glacial origin; it was in places covered with glacial mud, and was yielding and heavy to walk upon.

"Mr. Buchanan observed that the isolated rocks which had been rolled down upon the plain from the heights above were cut by the natural sandblast into forms resembling trees on a coast exposed to trade winds. The effect of every prevalent wind was shown by the facets cut by the blown sand upon the surfaces of the rocks, the largest facet in each case being that turned towards the west."

Alaskan wash-plains.—Professor Russell[1] has described several examples in the glacial region of Mt. St. Elias, Alaska, analogous to that of the Heard Island plain. True alluvial cones also form in this region along the steep ice margin where the drainage escapes from tunnels in the ice.

GENERAL CHARACTERS OF EXTRAGLACIAL WASH.

From the foregoing bibliographic references it will be seen that several writers have described forms composed of glacial sand and gravel accumulated at the front of the ice-sheet in the manner of deltas and alluvial fans. These deposits have a definite, recognizable form and structure, and have for some time taken rank with moraines, drum-

[1] I. C. Russell. The Glaciers of North America, Boston, 1897. See also papers by same author in National Geographic Magazine, iii, 1890, pp. 54-203, and 13th Annual Rept. U. S. Geol. Survey, pt. ii, 1891, pp. 1-91.

lins, eskers, kames and terraces, in the classification of glacial deposits.

So far as glacial drainage repeats the conditions existing in ordinary streams and rivers, we should expect to find, at the mouths of rivers and streams discharging from the ice, alluvial deposits corresponding in all essential respects to deltas with lobate and multilobate margins, to alluvial cones and fans, and to confluent cones and fans. The examination of the region here described has revealed examples analogous to most of these types, differing only in the respect that the deposits were built against or in the presence of an ice formation instead of a rock formation and that, by the melting of the ice, anomalies in the topography have been introduced which separate the group, often widely, from those deposits of non-glacial origin.

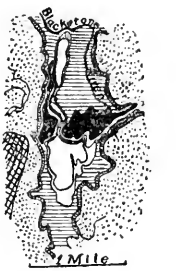


FIG. 1. Contour map of the Saylesville esker-fan (area left white) in Rhode Island. Horizontally ruled areas, swamps; black areas, ponds; dotted areas marginal terraces of sand and gravel. (Topography from Providence atlas sheet, U. S. Geological Survey.)

The following classes of glacial stream deposits are here recognized under the head of extraglacial wash:

Wash-plains, comprising gently sloping areas of gravel and sand deposited along the ice front. They are divisible into kinds dependent on their relations to frontal moraines, the ice-margin, and to the ice-margin and eskers.

From their relations to frontal moraines there arise overwash-plains banked up against the outer edge of the frontal moraine.

From their relation to the ice-margin alone there arise:

a. Frontal moraine terraces, with an ice-contact slope, charged with till and boulders, a true morainal deposit.

b. Frontal terraces, like the preceding but lacking the till-coating along the ice contact.

c. Esker-fans, small plains of gravel and sand built at the mouth of subglacial tunnels and channels in the ice; associated with an esker or esker-like chain of deposits made in the ice-sheet at the same time — *e. g.*, Newtonville, Mass.; Saylesville, R. I.

d. Wash-cones, steeply sloping deposits, with ice-contact slope on the iceward side culminating in a high point, with gentler slope outward, in the manner of alluvial cones — *e. g.*, Sprague Hill, Bridgewater; the deposit south of Waban Station, Mass.; deposits near Davisville, R. I.

With these general types are associated minor topographic features due to the mode of origin of the deposits or inherent in their relations to preëxisting formations. Some of these features are here described:

Drainage creases. — The largest plains of the outermost moraine in this area bear strongly defined drainage furrows, thought by all to mark the paths of streams flowing out from the ice-front at the time it lay along the head of the plains. By analogy with the channels on existing plains of like origin we should infer that these streams flowed in the open air.

These creases may traverse the entire breadth of the plain from the ice-contact to the distal margin. Many furrows are traceable only on the lower, outer margin of the plain for the reason that the later deposition of gravel in the form of fans along the ice-front clogged up and effaced the upper portions of such furrows.

During the construction of a delta in a water basin with constant level, the delta margin grows forward with the discharging streams running on the lobate axis. If the water level suddenly fall off, we should expect a stream to become diverted to the furrow between two lobes. To what extent the lobate aspect of some of the large creased

plains is really of constructive origin and to what extent purely erosional has not been definitely determined.

The study of creased plains becomes important in determining change of water level during the duration of the ice mass at the head of the plain, as in the case of the Barrington esker-fan in Rhode Island, where the writer has attempted to demonstrate that the water-level fell off from forty to fifty feet after the construction of the delta and before the disappearance of the ice at its northern margin.

Boulder-paved creases.— In those areas in which the outwash of gravels took place on lower ground than that on which the ice front rested, a case which occurs in the Mansfield region and eastward towards Brockton, there are occasionally exhibited north and south troughs, on till areas, marking the outflow of water from the ice. Such creases are usually paved with boulders and so resemble torrent beds although the inclination of the crease may be gentle. Such boulder-lines, although the material is identical with that of the boulder belts, should be classed with the water-laid drift deposits. One or two lines of these stream beds occur near North Easton on the northern border of the Narragansett Carboniferous area.

Kettle-holes, ice-block holes.— Many wash-plains are interrupted by depressions. Crateriform hollows probably indicate the site of buried masses of ice which on melting out allowed the gravel cover to settle. A cross-section of the wash-plain should here exhibit a quaquaversal synclinal. Crosby has observed sections of this character near Boston. It would be an advantage to restrict the term kettle-hole to depressions of this class.

Many depressions have steep sides, with coarse detritus, like the ice-contact phase of wash-plains in which they lie. These depressions are usually much larger than

kettle-holes and frequently are the sites of large glacial lakes. Depressions of this class are typical ice-block holes.

A drainage crease sometimes starts from the ice-block hole and traverses the plain; such furrows do not originate in kettle-holes as defined in this paper. In the kettle-hole the ice did not rise above plain level; in the ice-block hole, the ice once rose above plain level and the drainage ran across the plain.

Imperfect ice-block holes sometimes occur in the margin of wash-plains as between the lobes of the Drownville delta in Rhode Island. A similar phenomenon has been reported by Fairchild in western New York.

Large ice-block holes surrounded by the ice-contact are to be distinguished from "unfilled areas" between successive retreatal plains. Such unfilled areas will exhibit the ice-contact about their southern margins and lobate delta fronts about their northern border where later plain building has carried sands into the depression.

From the point of view of glacial geology, the occurrence of lakes in ice-block holes is an accident dependent on the height of the water-plane in the surrounding gravels. There are many ice-block holes of large size without lakes. Such depressions exist in the Plymouth area.

Ice-block holes are sometimes grouped, as where in the bottom of a large depression there are two or three isolated deep holes. The accompanying map (fig. 2) of the Agawam river area in Plymouth County, Mass., shows an example of this mode of occurrence. In this case the holes are occupied by water.

Typical ice-block holes in this region seldom, if ever, show ravines caused by streams eating back into the surrounding terrace. Kettle-holes, on the contrary, as in

the Robin Hill district, near Providence, R. I., not infrequently show wet weather gullies on the convex brow of the slopes, with alluvial fans converging in the bottom of the pit. These gullies have the appearance of recent origin. I owe the suggestion to Prof. George F. Wright that a very recent melting out of buried ice might give rise to changes now going on in the drainage of areas occupied by kame kettles. A kame-kettle recently formed would for some time be subject to marginal gullying. The observed results meet the expectations from theory; but the duration of the postglacial epoch has been so long that one's judgment, perhaps wrongly, rejects the conclusion that buried glacial ice still lingers in this field.[1]

FIG. 2. Ice-block holes near Agawam River, giving rise to three lakelets in a larger depression. (From Plymouth atlas sheet, U. S. Geological Survey, topography by Grambs, Smyth and Thompson.)

Inliers of older drift.— The contour of the wash-plains is frequently broken by knobs of coarse gravels or by till knolls and small drumlins. Both kames and eskers may be partly buried under the growing edge and rising level of the wash-plain. These features of deposition are illustrated in the area on the west of the Boston & Albany Circuit Railroad between Woodland and Waban stations. The Newtonville esker-fan encloses older knobs of drift.

Irregularities in texture and structure of plains may be largely explained as the result of the burial of drift deposits previously laid down. These abnormal textures are invariably coarser than the detritus in the body of the plain.

[1]See the literature concerning the ice wells in Vermont. Report of the committee appointed to examine the frozen well at Brandon, Vt. Proc. Boston Soc. Nat. Hist. viii, 1862, pp. 72-88.

Loess-like cover.— The sand-plains as well as the till of New England frequently bear a capping of fine loamy sand of loess-like consistency and further resembling loess in that the material is devoid of stratification; it stands up a long time in steep cuts, and appears to owe its origin to the blowing of dust in the post-glacial epoch. In places, the material appears to be in process of accumulation by depositing between the grasses so that the sod grows upward according to the rate of accumulation of dust. The underlying subsoil exhibits traces of decayed plants in roots and occasional branches which have been buried in the development of the deposit. This loess-like cover is conspicuous in low places in the sand-plains where it constitutes a sheet from a few inches to two or three feet in thickness. It may frequently be found at the foot of hills on terraces or plains. Deposits of this loess, on the southern part of Prudence Island, are from three to four feet thick where not recently removed by the winds.

This loess-like cover has much to do with producing the level of some of the wash-plains as it has also with the smooth flowing contours of the knob and basin type of drift deposits. It is largely, I believe, the product of post-glacial eolian action and this view finds support in the common occurrence of sand-blasted pebbles on the surface of wash-plains in close connection with the loess-like cover.

The deflation of the wash-plains does not usually result in the formation of dunes. The sands which are coarse shift somewhat to and fro with the stronger winds, but the prevailing direction of transportation is eastward, at least near Boston, for the reason that the easterly winds strong enough to move the finer sands are usually so damp as to cause the sands to cohere by reason of the films of water which coat the grains. The dry westerly winds alone effect the removal of dust.

Sandblasting and glyptoliths.[1]— The pebbles on the surface of the wash-plains frequently exhibit the touch of the natural sandblast. Sharply carved glyptoliths have been noted in many localities. The widespread occurrence of these pebbles beneath the soil in New England, in areas where the wind is not now blowing sand, makes it highly probable that immediately after the ice retreated and before vegetation came in, the barren sandy stretches were for a time in a desert condition.

Superposition of plains by raised water level.— Plains may exhibit the phenomenon of superposition in which the outward margin in the case of partial overlap assumes the form of grouped terraces, the lobate margin of the first formed plain extending beyond the lobate margin of the overplaced plain. This phenomenon is due to a rise of the water level above the surface of the first plain so that construction begins anew at the ice contact. It is shown in the superposition of a small plain on those which encircle Greenwich Cove in Rhode Island.

It is obvious that the overplacement of plains may conceal the initial deposit and result in the formation of a broader plain enveloping a smaller one. The existence of such a buried plain could only be determined on seeing the cross-section wherein the top-set beds of the older would underlie the fore-set beds of the newer plain.

Boulders generally absent from wash-plains.— In the town of Rehoboth, Mass., is a broad morainal tract with knob and basin topography, thickly strewn with large boulders of the Carboniferous conglomerates. Nearly in the middle of this tract is a small wash-plain with a typical ice-contact on its northern margin. The plain is free from boulders. The ice-contact at the head of the plain shows

[1] See Facetted pebbles on Cape Cod, by Prof. W. M. Davis, in Proc. Boston Soc. Nat. Hist. xxvi, 1893, pp. 165–175; also Post-glacial eolian action in southern New England, by J. B. Woodworth, Am. Journal Sci. for January, 1894.

that it was built against the edge of melting ice; the absence of boulders from the plain shows that the boulders on the surrounding mounds did not come to their positions from floating ice, else some erratics must have dropped on the plain. While boulders are rarely found on the actual surface of sand-plains, they are frequently found at the same level on the surface of till continuous with the sand-plain topography, and boulders have been seen sparingly in the sand-plain itself, particularly near the head, as at Woodland, Mass., where a boulder probably floated out on ice in the early stages of deposition. One of the plains in the Narragansett Bay region is coated with angular blocks and some till indicating clearly an advance of the ice-sheet over the field. Even on the hypothesis that plain level was marginally at water level, it is rather surprising to note the absence of boulders from characteristic wash-plains.

The iceward margin of wash-plains.— The head or highest part of wash-plains is towards the ice or the source of the detritus. There are two classes of plains as regards the topographic features of their iceward margin, viz.: (*a*) plains with a terrace confronting low interglacial ground north of them; (*b*) plains, without terraces, confronting till-covered areas usually rising above plain level. These types are illustrated by the Nantucket plain on the one hand, and that of Martha's Vineyard on the other.

We sometimes find kames and eskers associated with plains having an iceward terrace; but kames and eskers are quite as frequently absent as present. We must, therefore, conclude that there is no necessary relation between the formation of kames and eskers and the pouring out of gravels and sands from the ice to make plains. It is important to perceive this want of dependence between intraglacial and extraglacial deposits in formulating an hypothesis for the stream action which produces the wash-plain.

As yet the manner of flow, in the ice-sheet, of the streams which produced the greater sand-plains, has received little light from studies on the ground. This is partly because the structure of our sand-plains is rarely exposed at the head or terrace in a manner to show the method of building. From studies conducted on the Woodland plain it appears that building went on along the entire front, quite regardless of the esker which joins the plain on Beacon street. There is a very rapid passage outward in the plain at the mouth of the esker channel from coarse gravels to fine sands. The appearance of the contact zone where seen in the plain is such as to show that the esker built up *pari passu* with the plain, and that there were streams flowing in or on the ice of which no record now remains in the intraglacial field. From analogy with the conditions of discharge in Alaskan glaciers, made known by Russell's studies, we might expect waters under hydrostatic pressure bursting out as "springs" along the marginal portion of the ice-sheet, thus breaking out on the surface of the ice where it would be easier to maintain an open passage than through the clogging sand in the contact zone of the plain. An abandoned channel of this sort, almost connecting with the plain but filling up with gravel and sand, would present the "notch" which separates some eskers from their wash-plains, a feature which forms at present the chief stumbling-block in explaining the relations of esker-channels to their fans.

GEOGRAPHICAL DISTRIBUTION OF THE WASH-PLAINS OF SOUTHERN NEW ENGLAND.

(The numbers in parentheses refer to townships on the map, Fig. 7.)

In the uplands of this region, sand-plains are practically wanting. If these deposits occur there at all it is in narrow north and south valleys in association with rem-

nant tongues of the ice-sheet rather than along its main front. In the broad lowlands of eastern Rhode Island and the southeastern part of Massachusetts, embracing all of "The Old Colony," wash-plains abound.

The age of the plains in this field is, in general terms, successively newer from south to north. The outermost plains fronting the terminal moraine pertain to the height of the last or third glacial epoch. The more northern plains belong to the retreat of the ice-sheet and fall within the time commonly known as Champlain. But there is reason for believing that till- and drumlin-making may have been going on, about Boston, while the plains in the latitude of Providence were being deposited, so shadowy is the demarcation between the Glacial Period so-called and the Champlain Period as originally defined. It would be more consistent to speak of the superficial glacial drift of this field as pertaining to the last or third glacial epoch, allowing the term Champlain, as seems to be the tendency, to become obsolete.

The distribution of plains in this lowland district of New England is at first sight without order; but amid the labyrinth of passages in the decaying ice, channels which are now marked by accumulations of gravel and sand, there are certain well marked and massive accumulations which upon examination on the ground arrange themselves in lines comparable to moraines. To a certain extent, morainal accumulations attend the wash-plains which are thus distinguished from the irregular accumulations of this nature. In the following pages, the most prominent of these retreatal lines will be indicated, and under the head of sporadic plains, are placed a few notes concerning deposits which may yet be arranged in a coherent system, but which are not at present distinguishable from the irregular disposition of gravels and sands about chance blocks of ice left in the general retreat of the glacier.

Plains of the terminal moraine. — The largest and best defined outwash plains in this region are those lying in front of the outermost or terminal moraine lying upon the New England Islands. The plain on Long Island has not yet been mapped. If a plain ever existed in front of the morainal accumulations on Block Island, it has long since been washed away by the sea. The plains of Martha's Vineyard and Nantucket[1] are well illustrated by the contour maps of the U. S. Geological Survey. These two plains are apparently contemporaneous, having been formed well within a reëntrant angle of the ice-front lying between lobes, for convenience designated as the Cape Cod and Narragansett Bay lobes, which were more sharply defined when the ice front lay north of the New England Sounds on the "back bone" of the Cape.

Nantucket plain. — The Nantucket plain (13) is an essentially eskerless, kameless, well-defined outwash delta or series of fan cones fed by streams coming from the glacier, the position of whose front is very clearly marked by the terrace at the northern margin of the plain. Near its head, the plain attains elevations of sixty feet above the present sea-level, these points, apparently marking the last layers of outwashed gravel and sand, being separated by furrows due either to the failure of adjacent fans to coalesce marginally, or, as can be proved in some cases, to creases marking the discharge of subglacial streams.

The former contact of this plain with the ice-front can be traced by alignment to Tuckernuck Island on the west, and so onward by the wave-washed isle of Muskeget, to Chappaquiddick island where small fans extend in a northwest line towards the larger island of Martha's Vineyard.

Nantucket presents us with perhaps the best and clear-

[1] Consult the Nantucket, Muskeget, Martha's Vineyard and Gay Head atlas sheets (in Massachusetts). A colored model of Nantucket on the scale of one mile to the inch has been prepared by Mr. G. C. Curtis of Brookline, Mass.

est example of terminal moraine topography in the eastern United States, for the reason that the underlying preglacial deposits have very little expression in the relief of the area. On Martha's Vineyard and in the westward extension of the terminal moraine, an older topography at almost every step accentuates the height and grandeur of the morainal accumulations; whereas, on Nantucket, the approximate extent and bulk of the moraine and its posi-

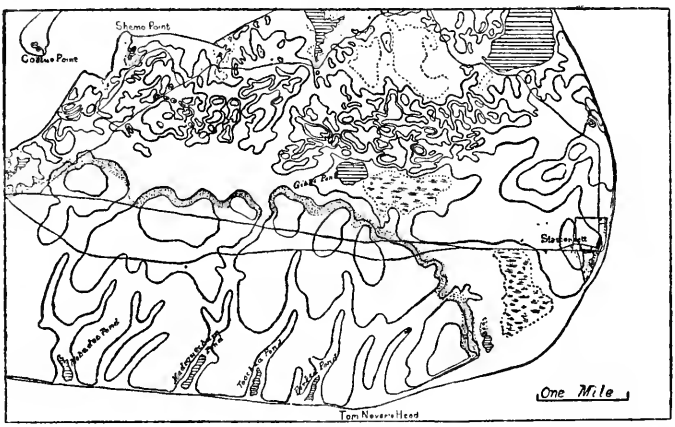


FIG. 3. A portion of the island of Nantucket, showing the frontal outwash plain with ice-contact slope (dotted belt between twenty and sixty feet contour-lines), the fosse or depression at the head of the plain, and the kame moraine or belt of mounds and kettles of submarginal drift. The contours represent some of the larger creases on the plain. Contour interval, twenty feet. (From U. S. Geological Survey, topography by E. B. Clark.)

tion with reference to the ice may be clearly discerned. (See Fig. 3.)

From the existence of a terrace at the head of the sand-plain which rises from forty to fifty feet above the depression or fosse on the north, it seems demonstrable that the ice-front lay along the head of the plain while deposition was taking place in the morainal tract proper. The knobs and basins moulded in the unstratified drift, then, are *submarginal* rather than precisely *frontal* in origin. In

restoring the glacial conditions, we should imagine the ice-front in contact with the head of the sand-plain, and the northern part of the island covered with ice rising as a gently sloping plain to the northward. From the front of the ice, rivers emerge laden with gravel, sand, and mud, as is the case with the plains confronting the Malaspina glacier to-day.

From the form of the plain on the east, it is thought that the ice-front turned southeastward and ran out over the Nantucket shoals. This interpretation is expressed in the accompanying map (Fig. 3), and on the general map of southeastern Massachusetts. (See 13, Fig. 7.)

Martha's Vineyard plain.—The Martha's Vineyard plain appears to have arisen in the angular space between the two lobes of the ice-front previously named. From Vineyard Haven harbor, the ice edge extended southeastward across Chappaquiddick Island in the direction of Nantucket as shown by the ice-contact delineated on the general map (Fig. 7). Topographic signs of this ice-contact exist on either side of Edgartown harbor. From Vineyard Haven, the ice front also extended southwestward lying for the greater part of its extent on the highlands of the island. At an earlier period than the time of sand-plain building, it is probable that the ice extended southward of the island; at least, as Professor Shaler has pointed out,[1] the southernmost part of this island and the neighboring island of No Man's Land are till covered. The position of the ice-front in the highlands of Martha's Vineyard is clearly indicated by *boulder-belts* (16), a type of frontal moraine accumulated on southward slopes where the fine materials were readily washed to the lower grounds. The position of the principal belt is shown on the accompanying map (16, Fig. 7).

[1] See his report on Geology of Martha's Vineyard, 1888.

Only in deep passes through the highlands, where the ice-base was low, did the construction of the sand-plain reach up to and above the base of the ice-sheet, hence the plain usually comes up against the rising slopes of the moraine without a definite terrace such as characterizes the Nantucket plain. Evidences of ice-contact are shown in the head of the James Pond depression (16) and again in a high terrace south of the state road at Sachem Spring in the region of Chappaquonsett Pond. There are fan-like forms, between the state road and the eastern side of Lagoon Pond and at an average radial distance of two and a half miles south of Vineyard Haven, which indicate the extension of the ice-sheet up to the arc, thus described, at a time just before the deposition of the Sachem Spring terrace.

The outer portion of this great plain is grooved by sharply defined drainage creases, some of which are traceable up to the line of the moraine. Other creases appear to have been originally thus extended but to have been later choked up by the outpouring of gravels and sands along the ice front.

This plain, like that of Nantucket, has, at the present time, an average slope of about twenty feet to the mile. Its inner margin attains an elevation of one hundred feet above the sea. It is relatively free from ice-block holes, one such depression existing one and a half miles south of the southern end of Lagoon Pond (15). Kettles are, however, not wanting in the morainal or intraglacial field of the time of deposition.

Plains of the Cape Cod moraine.—A well recognized line of moraine begins on Cape Cod, in Orleans (4), and extends west-by-south next the shore of Cape Cod Bay, curving northward to unite with the interlobate line of moraine skirting the eastern shore (12) of Buzzard's Bay. At the point of union (10), thick morainal deposits extend

northwards in the form of an interlobate moraine to and beyond Plymouth (17, 53). The Buzzard's Bay moraine caps the Elizabeth Islands and is then lost at sea, but probably appears westward in the Charlestown moraine skirting the southern coast of Rhode Island.

A broad plain (6–12) skirts the southern side of the moraine on Cape Cod, combining features which have been described on Martha's Vineyard and Nantucket, with the addition of numerous lakelets and kettle-holes which here take the place of the fosse on Nantucket.

Traces of what appears to be an earlier, temporary halt of the ice-sheet with deposition of small plains are shown along the southern coast of Barnstable (9) in situations which have not been suffused by the outwash of sands and gravels from the principal moraine. Two such deposits are shown on the annexed map of the Great Pond area in Barnstable (fig. 4).

A diagnosis of this plain in comparison with those of Nantucket and Martha's Vineyard is interesting in showing the irregularity of the melting of ice along the front and in the determination of the place in which the morainal wall proper was built.

The annexed map of the Great Pond region in Barnstable shows by the contours of the plain, as the author has been able to ascertain on the ground, that the ice-sheet probably overlay the morainal wall and lay in the lake area as late as the closing stage of sand-plain construction. The high terrace skirting the eastern border of the pond shows a marked slope away from the pit with a maximum point, the apex of the alluvial cone, designated by the eighty feet contour at the northeast corner of the pond. An examination of the map will show the reader that the plain slopes away southeastward, southward and southwestward from the respective sides of the ice-block hole. The association of the later local fans,

with what appear to have been blocks of ice or protrusions from the main mass, suggests that there was much detritus in the ice or on its surface, or that these special areas were the outlets of the drainage from above the base of the ice sheet. The occurrence of an esker-like ridge

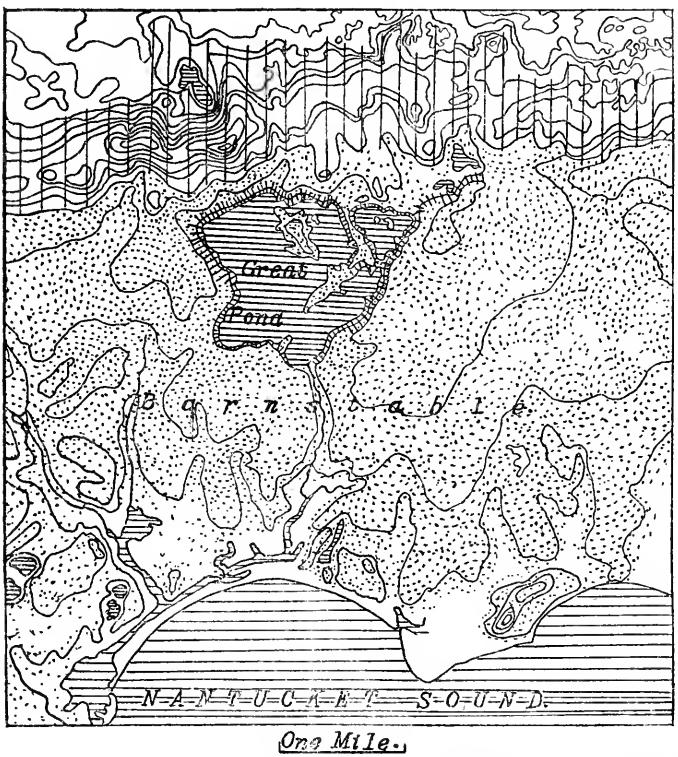


FIG. 4. A portion of the Barnstable atlas sheet, showing the morainal wall on the north and the wash-plain on the south enclosing Great Pond. Deposits of earlier drift form knolls and hummocks along the south shore. Contour interval, 20 feet (from U. S. Geol. Survey).

in Great Pond recalls the features of the Saylesville esker (87) and lateral terraces in Rhode Island (Fig. 1), as well as the like features of Cunliffe Pond near Providence.

The Elizabeth Island moraine presents no outwash plains above the sea-level. The moraine itself, according to investigations carried on by C. W. Coman under Professor Shaler, overlies stratified drift, which appears to be of an earlier date than the halt of the ice-sheet at this line. Neither is a sand-plain developed above sea-level in front of the Charlestown moraine. From analogy of this line of moraine with the similar deposits on Nantucket, we should expect to find the sand-plains of that stage from half a mile to a mile south of the moraine and beneath the present sea-level in these areas, the moraine itself being a submarginal deposit.

Plains of the Narragansett Bay region.—The principal features of the numerous plains in the Narragansett Bay area have been described in my paper of 1896. They need be referred to here only in connection with the lines of retreat which they mark.

The Middleboro moraine.—The southeastern border of the Carboniferous area from Fall River eastward is more or less topographically shown by a low elevation of granitic hills. Closely following this line and in the sedimentary, lower area is a recognizable line of glacial, frontal accumulations, perhaps best shown at Middleboro (30), where, east of the town, morainal hills, with crumpled gravels, lie on the northwest border of stretches of sand-plain extending southeastward. This type of topography extends northeastward to Kingston, beyond which it merges into the complex morainal and fan-cone topography of the Plymouth interlobate moraine (32). Numerous streams head in the belt, flowing to the southeast or northwest, and showing manifest derangement by the distribution of the deposits. The Lakeville lakes (28) lie on the outer margin partly enclosed by earlier drift. Great Cedar Swamp lies in the unfilled area back of the morainal line.

Southwestward (27) towards Fall River (24), frontal deposits are traceable in the terrace from that city to Tiverton, and again in the partly submerged sand-plain at Tiverton Bridge (91) on the island of Rhode Island. The deposits along this line are notably stronger and show more signs of ice action as we approach the region of the interlobate moraine on the west shore of Cape Cod Bay.

The Providence-Bridgewater line.— A fairly distinct line of morainal accumulations with outwash plains extends from the narrows, at Providence (42), northeastward, through Rehoboth (40), Taunton (37), Raynham (36), Bridgewater (35), and so to Pembroke (51), in the North River region, joining the Cape Cod Bay lobe near the Coleman's Heights (57) sand-plain which was built at the margin of that lobe.

The Bridgewater locality exhibits perhaps the most unique of these deposits near Boston. Sprague Hill (50) the site of a water-tower, is the culminating point of this morainal line. The highest point of the mass appears to be the apex of a large cone built at the ice-front. The northern slope of this hill has all the features of the ice-contact, in its steep slope, in the coarseness of the detritus, even boulders being occasionally present as in the morainal terrace of Gilbert. From the ice-contact the deposits fall off rapidly southward in long finger-like lobes, ending on a terrace, which appears to mark a water level in the region. The cone above described appears to have been built above water level. Westwards, near the railroad, sand plains occur, with the ice-contact well developed.

About one-quarter of a mile north of this ice-contact line there appears, east of the railway track, an area of typical morainal topography and deposits. A few cuttings show that the till is locally not more than three to four feet thick and that it overlies water-worn drift of

a rather coarse type. We have here repeated the cross-section of frontal or submarginal deposits which appears so distinctly on Nantucket, viz.: going from south to north, (1) an outwash plain; (2) the ice-contact, a terrace overlooking low ground which may be designated as (3) the fosse, occupied by undifferentiated drift, frequently bouldery; and followed by (4) morainal mounds, with till and underlying wash, to which succeeds on the north the ordinary ground moraine.

If we suppose that the morainal mounds were built at the front of the ice when its edge lay on their northern side, then we have no contemporaneous wash deposits attributable to the discharging streams. It is more rational to suppose that the morainal mounds accumulated under the ice when its front lay along the wash-plain heads, thus correlating extraglacial plain-building by drainage with intraglacial mounding of till by forward ice movement.

The superposition of till on stratified drift in these morainal mounds in the intraglacial field has elicited two alternate hypotheses, viz.: 1. The deposit is due to the overriding of a small gravel outwash fan built on the site of the mounds in a stage of the ice retreat immediately preceding the Bridgewater stage, when the ice front was along the northern edge of the present morainal area. Outwash fans tend to occur in isolated forms. The overriding action of the ice would mantle them over with till and destroy the form of the original deposit. 2. After a wash-plain has grown up at the ice margin, it forms a mass resisting the forward motion of the bottom ice. The upper ice would tend to shear off from the stagnant prism lying behind the sand-plain head. At the point where the bottom of the live ice began to move up over the inclined plane thus formed, the subglacial till would

tend to clog in the plane between the live and dead ice. There might thus be established one of those masses of till involved in the ice which Chamberlin has described in Greenland. On the subsequent melting out of the ice, the unequal thickness and rate of lowering of this till to the ground would result in mounds. This hypothesis accounts for the till in the submarginal moraine but does not account for the underlying waterworn gravels. On this account, the first hypothesis is preferred.

Mr. H. T. Burr, a student in Harvard University, has traced this line of ice-front several miles to the northeast.

The Wrentham-Weymouth line of lakes. — There is a prominent line of glacial lakes extending in a northeast and southwest direction from near the northeast corner of Rhode Island to Weymouth, Mass. These lakes are as follows, beginning on the southwest: Shepardville Reservoir, Shepard's Pond, Cocasset Pond, Neponset Reservoir, Billings Pond, Massapoag Pond, ponds and reservoirs at Canton, Ponkapoag Pond, Great Pond, Little Pond. These lakelets are simply the water occupied portions of low areas partly surrounded by plains of sand and gravel. No attempt has been made to map this line of apparent ice-front and further study is necessary to show that the plains are not merely fans fringing ice-blocks.

The enclosing plains form a line of deposition not readily separated from the wash-plains referred to in this paper as the Woonsocket-Sharon line described below. By the frequency of the three-hundred feet level on some of these deposits from East Foxboro northward towards Sharon, it seems probable that further study will show a connection between the plains dependent on water-level in this field.

The Woonsocket-Sharon line of deposits. — A fairly

well defined line of wash-plains can be traced from the south side of the Blackstone River at Woonsocket northeastward to the southwest corner of the Blue Hills. The Woonsocket (70) outwash plain stands at an elevation of about three hundred feet above the sea. At Sharon (64) there is an extensively developed plain also at an elevation of three hundred feet. A few miles northeast (82) of this plain begins the deposit built along the edge of the ice when the Neponset valley was occupied by the retreating front. This deposit has an elevation varying from 140 to 150 feet above sea-level. At the base of Little Blue Hill, the plains of this stage have been suffused by a fan supplied by the drainage coming through the pass between Little and Great Blue Hill, evidently after the retreat of the ice from the Canton stage, but while the sheet still clung about the northern base of the Blue Hill range.

Immediately north of Canton Junction station, the head of the plain of this stage shows grouped terraces and the intraglacial ground is heavily strewn with boulders dropped from the melting ice. The Neponset valley with its marshes thus represents an unfilled area whose existence as such depends upon the position of the ice front. About Islington (81) on the west side of this depression, there are local plains and eskers, but the development of plains along this western line was so feeble that the Neponset valley was scarcely invaded by them.

North of the Woonsocket-Sharon line of plains lies the Mechanicsville esker-fan in the town of Bellingham. As shown in the accompanying figure, the esker and the notch in this deposit are abnormal, the esker in its breadth and the notch in its depth. The notch gives passage to a stream and a pond lies in the axis of the esker at the head of the plain, showing that the ice-wall was intact the entire length of the plain. It seems likely as noted on p. 87

that the observations of Russell on the Malaspina glacier fountains may afford an explanation of this case, for if the subglacial drainage found its way to the surface of the margin of the ice through a crevasse or hole when the lower end of the subglacial streamway became clogged, a break in the continuity of the esker-fan and the esker would be expected.

The Newtonville-Woodland wash-plains.—The Newtonville esker-fan described by Professor Davis and modelled by Dr. Gulliver lies south of the Charles River apparently in line with larger wash-plains lying between Woodland and Waban stations on the west. The Woodland plains are complex in structure, showing the phenomena of ice-retreat and the overlapping of newer plains on those previously laid down.

FIG. 5. The Mechanicsville wash-plain with the esker-like deposit north of it. The "notch" between the esker and the plain is followed by a stream and is occupied by a pond. (Topography from Franklin atlas sheet, U. S. Geol. Survey.)

Southeast of Waban station stands a ridge of gravel and sand with an ice-contact slope on its northwestern face with typical coarse detritus in the contact zone. The opposite side of the ridge is lower, slightly lobate, and the detritus finer. The inclined surface of the deposit suggests that we have in this case an alluvial cone built at the ice edge. The deposit is lengthened parallel with the ice contact.

The Cambridge moraine and plain.—Old Cambridge lies upon a plain of sand whose northern limit is a well defined ridge extending from Porter's Station southwestwards by the Harvard Observatory and thence westwards along the southern border of Fresh Pond to the Watertown line.

This ridge rises at three points to the uniform height

of eighty feet above the sea and has an average elevation of forty-five feet above the plain on the south. It is a complex structure of glacial materials. The core of the ridge is clay apparently pushed up from the area on the north. On the south side of the ridge, as in the vicinity of French Pond Lane, a sheet of washed gravels declines southward from near the top of the ridge. Locally, along this crest, the southern slope of the ridge is rudely stratified as if by the overwash of waters from ice lying on the north. Just west of the Watertown branch of the Fitchburg R. R., at the point where it passes through this morainal ridge, the bulging front of the ridge is strongly morainal in form.

On top of the clays, throughout the extent of the ridge, is a thin deposit of glacial drift composed of boulders and small fragments derived from the slates and igneous rocks in the Boston area and on the north of it. These materials are frequently ice-scratched.

This ridge is at the southern end of the line of ice-block holes with attendant wash-plains which begins in Fresh Pond and extends northwards through Spy Pond in Arlington to the Mystic Lakes, the Winchester Ponds and Horn Pond in Woburn. The moraine bordering Fresh Pond indicates that there was a slight forward movement of the ice on the line of the Woburn-Arlington depression, causing the ice to excavate the underlying clays in Belmont and Cambridge. This movement lasted perhaps somewhat later here than the disappearance of the ice in the drumlin area to the eastward in Somerville.

Kames on the west side of Fresh Pond, as pointed out by Professor Crosby in 1889, show marked signs of overriding by the ice. The annexed figure represents a sketch of folds in the gravels observed by the writer on June 7, 1891. Further evidence of ice movement in this

same side of the pond has been frequently observed in the heads of clay which protrude into the overlying gravels. These masses sometimes rise up as much as ten feet above the level of the pond. In one part of the section a bed of clay was forced up with the gravels into a broad arch as shown in a recent report on the Cambridge clays.[1]

The frontal wash-plain has an average elevation of about thirty feet above sea-level. It is pitted by broad shallow depressions most of which have disappeared under the extension of streets and buildings and through the action

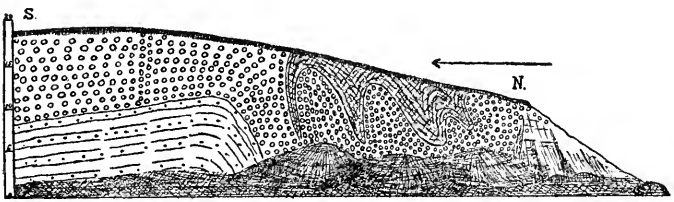


FIG. 6. Section (now destroyed) on west side of Fresh Pond, as seen June 7, 1891, showing folded and eroded gravels. The arrow indicates direction of ice motion. Elevation in feet.

of peat-making plants. One such peat-bed was encountered in laying the foundation of the botanical section of the University Museum on Oxford street.

Several glacial deposits of an earlier date than the plain interrupt its extent. The knoll of till in Harvard College yard, extending to Dana Hill, is such a mass, as are also the partially graded kames in Mt. Auburn cemetery. There are no contemporaneous kames or eskers associated with the plain. It appears to have developed largely as overwash and outwash from the moraine before mentioned. The cuts in the plain formerly exposed in

[1] See Shaler, Woodworth and Marbut; 17th Annual Report, U. S. Geol. Survey, pt. i, p. 990, fig. 37.

the pits on North avenue (now so-called Massachusetts avenue), near the car stables, revealed frequent reversals of cross-bedding of the tidal sort, giving the impression that the plain was formed beneath sea-level. The extension of the plain eastward into Cambridgeport favors the same view, but no decisive facts have been gathered to exclude the hypothesis of a glacial lake at the level of about thirty feet above the present sea-level. In connection with this higher water level, it should be mentioned that there is, in the outer margin of this plain, a distinct furrow or crease, occupied by Willis Court, which joins the Charles River at Gerry's Landing. This old drainage furrow is now partly submerged by the Charles and occupied by marsh deposits.

Sporadic plains.—Between the lines of dominant sand-plains and moraines outlined in this paper there occur sporadic plains built without definite arrangement between and around masses of melting ice. Until the actual ice-contacts in this area are carefully plotted and the superposition of wash deposits has been made out, further mention of these deposits can be of little more value than to guide students to them. The following notes are recorded for the sake of those who desire to undertake the study of promising localities.

On the Taunton sheet the mass of gravels on the southern border of Cedar Swamp should be examined. The course of the Three Mile River from Norton reservoir southeastward to Taunton appears to be determined by constructive depressions between sand-plains.

On the Abington sheet, the shores of the numerous lakes and so-called ponds are invariably formed by wash-plains. The course of the North River is through a region of plains and morainal mounds. Monponset Pond, on the south, is one of the saddle-bag type, like Cunliffe

Pond. A well-defined esker divides the lake into two lobes. On the eastern and western sides of the pond are wash-plains.

At North Pembroke, plains are developed in succession on the south side of the North River. Long Hill, on the east of the town, is a high plateau apparently of wash origin. A well-formed wash-plain rises above the village immediately east of the principal street. It should be noted that a well-defined esker comes down the hill on the north of the river and passes beneath the swampy stream at a point opposite the mouth of Robinson's Creek.

The plains in the northern part of this atlas sheet have been described by Crosby and Grabau in connection with Lake Bouvé.

Numerous deposits on the Duxbury atlas sheet are resolvable into high plains and cones of washed gravels. Everywhere steep slopes marking ice-contacts appear.

On the Plymouth sheet, there is a double alignment of ice-block holes and lakelets. One line runs northwest at a distance of two or three miles from the shore of the Bay and includes the following ponds, beginning on the north: Smelt, Triangle, Billington Sea, Cook, Great South, Boot, Gunner's Exchange, Crooked, Long, Halfway, Bloody, Little and Great Herring. Springing out from this line and extending southwestward are at least six marked lines of ponds beginning with Buttermilk Bay on the south. Next come White Island, Glen and Spectacle ponds; farther northwest is a line of lakelets running southwest from Crooked Pond of the main line series; another set intersects the main line in Great South Pond. Billington sea has a spur in West Pond; Triangle Pond in the main trend is in line with Round Hole, Clear and Darby ponds. The ponds in the main line have their axes northwest and southeast; those in the spurs are

elongated in the direction of the cross-lines, northeast and southwest. Between the lines of ponds are broad, high plains, mainly sloping southwestward. The deposit between the Great South chain of ponds and the Crooked Pond series is the most pronounced. The ponds mark ice blocks. The plains mark valleys in the ice filled with detritus. The Monument River depression partakes of the character of the northeast and southwest lines of ponds, but has been scoured out by running water. The full interpretation of this interlobate morainal area promises to throw much light on the formation of plains about ponds.

The Middleborough sheet presents many sporadic plains with lakes and swamps.

THE WATER-LEVEL OF WASH-PLAINS.

A stream of water flowing in a trench and scouring its bottom will begin to deposit its load on encountering a deep hole. A sub-aqueous delta with a lobate front and flat top will form in such a place. This deposit will build up to a level at which the velocity of the current for the depth of water is at bottom sufficient to drag to the lobate margin the particles which the stream brings to the place. These particles are hurried along and dropped in the talus at the end. With constant velocity and load, the delta builds uniformly forward. The height of the plain in this case is not *directly* determined by water-level, but it is *indirectly* related to it in so far as water-level depends upon the cross-section of the stream, depth of water, velocity, and width of channel. It has not been shown as yet that any wash-plains in this region have developed under conditions similar to those above indicated.

Streams heavily laden with detritus and pouring out from declivities on to low grounds above baselevel build cones with slopes at angles dependent on relation of load

to stream volume, with a tendency to approach the dry talus at one end of the series and the alluvial fan at the other end of the series. In this field there exist several peculiar deposits, usually ridge-like in habit, but differing from eskers in that they extend east-west, or north-east and south-west while neighboring eskers extend north-south; and in that they have a typical ice-contact on their northern or iceward sides, and a deltate or lobate topography on the opposite southern side. There is usually a steep slope from the summit line of the ice-contact slope to the outer margin. The deposits not infrequently have one high apical point along the ice-contact. They are deposits of the subaërial type in most cases, although marginal delta lobes would in other cases point to standing water about their bases. Both the Bridgewater cone, known as Sprague Hill, the deposit at Walpole Junction and that southeast of Waban station point clearly, it seems to the writer, to the subaërial construction of the upper prism of these deposits.

If the topography of an existing alluvial plain deposited in a water-body may be taken as affording evidence of water-level, the summit line or brow of the lobate margin is at water-level. On the margin of such a deposit, lobes are built by different streams at the same time or by the same stream at different times since a stream may wander from side to side of the fan; hence, since the water-level may vary, the lobes of such a plain may occur at slightly different levels. The instances pointed out by Salisbury in Lake Passaic, New Jersey, probably fall within this class of effects. The elevation of the summit line of multilobate plains thus becomes of importance in determining water-levels. It is the southern and outer rather than the northern and iceward margin of the plain which is taken into account. In most plains the level of the

middle of the plain as given on maps is probably a fair elevation to assume for water-level.

Taking this level for data, we obtain the following results on two lines of wash-plains going north, one in the Connecticut Valley area, the other in the Narragansett Bay region. The elevations are taken from the U. S. Geological Survey atlas sheets.

A. In the Connecticut Valley region.

PLACE OF DELTA OR WASH-PLAIN.	LATITUDE.	DISTANCE FROM COAST AT SAVIN ROCK.	ELEVATION ABOVE SEA.
1. New Haven.	41° 18′	3 miles.	15 feet.
2. Bristol, Conn.	41° 41′	29 "	650-670 feet.

B. In Narragansett Bay region.

PLACE OF DELTA OR WASH-PLAIN.	LATITUDE.	DISTANCE FROM COAST AT POINT JUDITH.	ELEVATION ABOVE SEA.
1. Slocumville, R. I.	41° 32′	11 miles.	160 feet.
2. E. Greenwich.	41° 38′	20 "	50 "
3. Barrington.	41° 44′	27 "	50 "
4. Saylesville.	41° 53′	37 "	107 "
5. Attleboro, Mass.	41° 56′	40 "	140 "
6. Woonsocket, R. I.	41° 59′	45 "	300 "

If we suppose the two deposits cited from the Connecticut valley area to have been formed at sea-level, we must assume a postglacial tilting to the northward of 25 feet to the mile, a result so far abnormal as to exclude the supposition. Moreover, this view forces us to hold to a

submergence of over 650 feet at Bristol, Conn., while at Bristol, R. I., in the same latitude, the nearest wash-plains would indicate a submergence to a depth of about 50 feet. Other anomalies, if we hold sea-level to lie rigidly at delta plain level, appear in the Narragansett Bay region as I have pointed out in another paper. There we have the Slocumville plain at 160 feet in the hills, followed by plains at 50 feet in the low now open grounds; and the Attleboro deposit at 140 feet in the low grounds with the Woonsocket deposit at 300 feet in the hills and only five miles farther north. In this latter case, we should have a tilt rate of 32 feet to the mile!

It may be objected to the above statement of the marine limit hypothesis that the high plain at Woonsocket for instance was built during the deeper submergence which attended the going off of the ice, while the low level plain at Attleboro was deposited later when the land, unladen of much ice, had risen higher. But this argument is met by the rather decisive facts in the glacial history, showing that the Woonsocket deposit belongs to a line of retreatal moraine formed later than the Attleboro accumulation. The attempt, therefore, to interpret sea-level by a rigid application of the criterion of wash-plain level involves us in hopeless inconsistency, sudden changes of level, and the need of having the sea at different levels at the same time in the same region.

If the water-level index afforded by delta fronts means anything at all, it seems to point to local bodies of water standing at levels dependent on local topographic conditions as in temporary glacial lakes or flooded areas by which I mean bodies of water formed in basins where the rise of the water is due to the excess of inflow over outflow, however brought about. The occurrence of plains in high grounds along the south coast as well as on the

low grounds along essentially contemporaneous ice-fronts shows that sea-level could not have afforded the control which has limited the upward growth of wash-plains. This view of course does not exclude the possibility of certain low-lying plains near the coast being deposited under the marine limit; but the wash-plains themselves have not as yet, it seems to the writer, been made to furnish the criteria of marine deposition. Beaches, fossils, and wave modified glacial deposits are much better indications of submergence than deltas which are in this region identical in form and surroundings with similar glacial accumulations found under circumstances where no submergence is supposed to have taken place.

STAGNATION OF ICE-SHEET.

The mode of deposition of the wash-plains and accompanying morainal deposits above outlined in this paper affords a clew to the relative areas of stagnant and live ice during the retreat of the glacier across this field. The facts demanding stagnation are found in the numerous ice-block depressions and in wash-plains with heads which show no forward movement of the ice-sheet, either by the failure of shoving in the gravels or by the lack of morainal deposits in the terrace at the wash-plain head. The facts demanding live ice at intervals during the retreat are the lines of boulder-belts, positions marking halts of the ice-front during which backward melting equalled forward movement. A similar demand is made to explain displaced and overridden glacial deposits, as in the case of the Fresh Pond area in Cambridge. It will also be shown that the distribution of prominent belts of wash-plains can only be explained on the supposition of a forward movement of the ice.

The picture presented by Professor Davis of the marginal portion of the ice broken up into isolated blocks around and between which streams deposited gravels and sands is again and again forced upon the mind in the lowland of the state and in the valleys in the uplands. These ice-block holes as the bergs now present themselves to us, like the sands which surround them, do not mark a single phase of the retreat. As in the Narragansett Bay region, the drift phenomena are increasingly newer as we go northward. The repeated overlap of the lobate front of one wash-plain upon the esker and kame deposits of an earlier stage to the southward is sufficient evidence of the general truth of this statement. This mode of retrogression of the front is what we should expect in the case of an ice-sheet thinner on its margin than in its central part. The existence of recessional wash deposits does not therefore of itself disprove the idea of a period of general and complete stagnation of the ice over this area. But when we consider the evidence of forward movement of the ice at several successive lines across the eastern part of the state as in the Middleboro, Providence-Bridgewater, and Cambridge moraines, it becomes evident that the ice-sheet as a whole did not lie stagnant on the area. There were periods of marginal inactivity, accompanied by the tunneling of running water, esker-building, terrace and plain construction, with a general retreat of the main front, followed by seasons of advance, with the shoving of drift deposits, the spreading of till and boulders over wash-plains.

The occurrence of the several morainal patches with wash-plains in lines which traverse the area between the head of Narragansett Bay and the south side of Boston Bay is further evidence of forward movement in the ice sheet. These lines of frontage obey the law of marginal

lobation, by which the equalization of pressures in the ice along the front maintains a convex outward curve.

From all these considerations it seems to me possible to conclude that the ice-sheet retired from southern New England at least as far north as the Cape Ann boulder moraine while the main mass was still live ice.

DECOMPOSITION IN WASH-PLAINS.

The retreat of the ice from this field was so recent that the general form of the deposits and most of their details remain unaltered. Owing to the openwork structure of the wash-plains, and to the fact that the clays made at the same time were carried off into deeper water, the sands allow the rain water which falls upon the plains to sink through instead of running over the surface and cutting trenches. While the deposits are thus by their structure protected from erosion, they are subjected to chemical alterations by the action of the water which passes downward through the soil. In this region, where the plains are largely built of particles of feldspathic rocks, most pebbles contain solvable minerals which sooner or later go to pieces.

Croll[1] has pointed out the fate of glacial deposits strewn over the land surface and so left for an indefinitely long period without preservation by burial beneath overlying strata. Glacial drift so left must gradually waste away, going to the sea mainly in solution, while quartz vein pebbles and the quartz of the granitic rocks alone will remain to make pebbly beds, in which there may remain no distinguishable feature of glacial origin. The beginning of this change is already far advanced in the glacial deposits even in the latest in the latitude of Boston.

[1] Climate and Time, chap. XVII.

Professor Shaler, in his report on the Geology of Nantucket, has presented a study of decay in the glacial deposits of that island the leading features of which changes I cite in his own words:[1]

"Perhaps the most noteworthy feature in these deposits of drift is the very extensive decay to which the pebbles and sand have been subjected. Some of the consequences of this decay will be noted below. In their form and structure, the drift deposits in no distinct way differ from the similar accumulations found in the region a hundred miles farther north, but in their state of preservation they present important differences. The decay which has attacked the pebbles is exhibited in the following ways, viz.: (1) By the interstitial decay of the stone, which manifests itself in the crumbling of many of the varieties of crystalline and fragmental rocks; (2) by the dissolved look of the surface of the rocks which resist the interstitial decay; and (3) by the development of the incipient joint planes in the pebbles, so that, though they may be but little decayed, they often split into fragments on being removed from their bed."

An examination of the pebbles in some of the wash-plains near Boston shows the presence of similar effects due to chemical action. The most conspicuous example which has fallen under my notice is the case of the overridden deposit or "kame" on the west side of Fresh Pond, in which thousands of pebbles break down into angular pieces or have been so far leached out as to crumble into a rusty red powder when released from the bank.

In the Woodland wash-plain, the following changes in the section lying above the water-plane in the gravels have been observed. In the first place, pebbles lying near the surface of the deposit in the top-set beds and having

[1] Bull. 53, U. S. Geol. Survey, pp. 21–22.

veins of carbonate of lime have invariably been robbed of these veins by the downward percolation of rain-water charged with acids from the soil and the air. Now and then, the interior of a pebble exhibits a remnant of one of these veins as a deliquescent lump of calcite marked by spoon-shaped inosculating depressions, the characteristic mark of solution. Deep clefts are frequently opened up along the cleavage planes of the calcite. The cavities in many pebbles, thus formed by the removal of calcite, constitute from a tenth to a fifth by volume of the rock. Thousands of pebbles exhibit the same abstraction of carbonate of lime.

Associated with but underlying this pebbly zone of solution is one in which the pebbles exhibit the redeposition of the carbonate of lime. This deposition of the lime carbonate takes place as in the case of stalactites in caves, on the under side of the roof-like surface of the larger pebbles which rest upon coarse sands below. A crust of lime carbonate thus forms cementing the underlying sands to the overlying pebbles. On top of the pebbles which carry this lime crust is usually to be found a film of dust, the mechanical load of the percolating water. A few pebbles become encrusted over their entire surface with carbonate of lime.

This action is most noticeable in the northern or head portion of the wash-plain, where the gravels are relatively coarse. The lime carbonate layer is not more than five or six feet below the surface in some instances. It suggests itself that the agricultural value of wash-plains might be enhanced by penetrating to this lime-bearing zone and returning the carbonate of lime to the soil by accumulating heaps of the gravels from which the lime would slowly, by the action of the rains, work its way into the surrounding top soil. After such gravels have been

leached, they may be returned to the pits whence they were taken. By carefully working over the field so as not to have more than a few pits open at one time, the whole area might in the course of a few years be replenished with lime carbonate at a small loss of acreage exempted from cultivation by the pits and gravel heaps.

A rare occurrence of an analogous series of changes is the deposition of green carbonate of copper on pebbles, the copper having come from the breaking up of sulphides of that mineral in the overlying pebble layer.

The iron-bearing rocks and particularly those which carry both iron and lime, as in the case of the basaltic rocks and the diabases of the region, have frequently undergone decomposition to the point of losing their identity. The rusty pebbles feel light or have partly fallen to pieces regardless of their joint planes. In extreme cases, nothing is left of the contour of one of these pebbles but the network of quartz veins which it contained.

The segregation of oxides of iron in the outer crust of diabase pebbles sometimes takes place. This crust becomes heavy and limonitic, with a bluish black tarnish. A further stage in this line of alteration shows a yellowish powdery center surrounded by a dark brown crust, traversed in every direction by irregular wandering cracks gaping at the surface and dying out inwardly, the greater fractures only intersecting the nucleal portion of the pebble. These cracks are undoubtedly due to expansion consequent upon the oxidation and hydration of the iron in the interior of the pebble. Such pebbles exposed to the air and frost speedily crumble into dust.

Owing to the low stand of the sand-plains, their bottoms generally lying at or below base-level, the streams have not cut down near them so as to expose their floor, and so only here and there do we see signs of accumula-

tions of chemical waste such as give rise to sands and gravels cemented by iron oxides in other fields. In fact, there are few or no instances in which the consolidation of considerable masses of the glacial gravels have been observed in this area. Such consolidation as I have observed has most conspicuously taken place in a series of gravels and sands antedating the last glacial advance as on Martha's Vineyard and Block Island.

The result of the loss of materials in the upper parts of our glacial sand-plains by chemical solution must in the end become apparent in the lowering of their mass. If the action is uniform, the skeleton pebbles will crush and settle down into the open spaces below. Owing to the openwork structure of the gravels, the falling of the decayed pebble matter into the spaces remaining between the sound quartzose pebbles might lower the surface of the ground several feet. Since the pebbles and the consequent openwork structure are mainly developed at the head or in the ice-contact zone of the plains, this part will undergo the greater amount of settling from solution and crushing of the skeleton pebbles. For this reason important topographic bench marks should not be located upon the table-like deposits of this class nor should permanent and weighty stone structures be built upon these terraces. The falling in of the surface of these deposits, if it should occur, can hardly be discriminated topographically from the effects of the pronounced caving in which took place shortly after their deposition from the melting out of masses of ice.

The rate of solution of carbonate of lime under the conditions in which it exists in these wash-plains has not been determined. It is quite certain that, when the pebbles were brought to their position in the deposits, the veins of carbonate of lime were intact. We can ascer-

tain exactly the amount of carbonate of lime which has been removed. In those cases where some of the veinstone still remains, from an extended series of observations there might be determined the rate of solution and so the duration of the post-glacial interval.[1]

ECONOMICS OF WASH-PLAINS.

The wash-plains of this region play a very important rôle in the settlement of the country. Professor Shaler has noted the choice which they offered, to the early settler, of flat lands freed from the boulders encumbering the till-covered uplands. Although the wash-plain soils are sandy and relatively dry, the small amount of labor required to put some of the less elevated ones into the cultivated state led to their early occupation. Their formation has, in many instances, led to the production of wet woods and bouldery swamps in the intraglacial ground between successive plains, as at Foxboro, Mass., on the Shore Line Railroad, where the only available dry ground is a wash-plain.

In the suburbs of cities, the wash-plains afford vast stores of gravel and sand used in the construction of masonry and walks. The peculiar and regular structure of these deposits makes it possible to give directions for the search after sands and gravels. Coarse gravels will be found in the ice-contact zone, normally the northern aspect of the deposit, and in the top-set beds. The lobate margins afford supplies of the finest sand which the deposit holds. From these observations, it follows that a search for gravels should be begun at the northern side; for sand, at the southern side of a wash-plain. By stripping off the top-set beds, a supply of moderately fine sand

[1] On the decomposition of rocks, see Rocks, Rock-weathering and Soils, by George P. Merrill. New York, 1897, Part iii.

may frequently be found for many yards northward of the frontal lobes.

The wings or lateral lobes even along the ice-contact sometimes afford sand as fine as that found in the southern part of the plain and for the same reason that the stream coursing over the delta was here at its end in deep water.

Kettle-holes have frequently become the site of small, post-glacial peat deposits, and of fine, loamy sands washed out by rains or borne by the winds from the coarser gravels of kames and plains. These fine sand deposits, since they are usually available without the labor of preparation by sifting, are locally resorted to for masons' supplies.

CONCLUSIONS.

From the general studies presented in this paper, the following conclusions have been arrived at by the author:

1. The wash-plains of southeastern Massachusetts are noticeably arranged in northeast and southwest bands, which correspond to morainal deposits marginal to an ice-lobe retreating across the region immediately west of Cape Cod Bay.

2. The Providence-Bridgewater line of these deposits presents well-marked submarginal and frontal moraine phases indicating that the marginal portion of the ice-sheet at this stage was in motion.

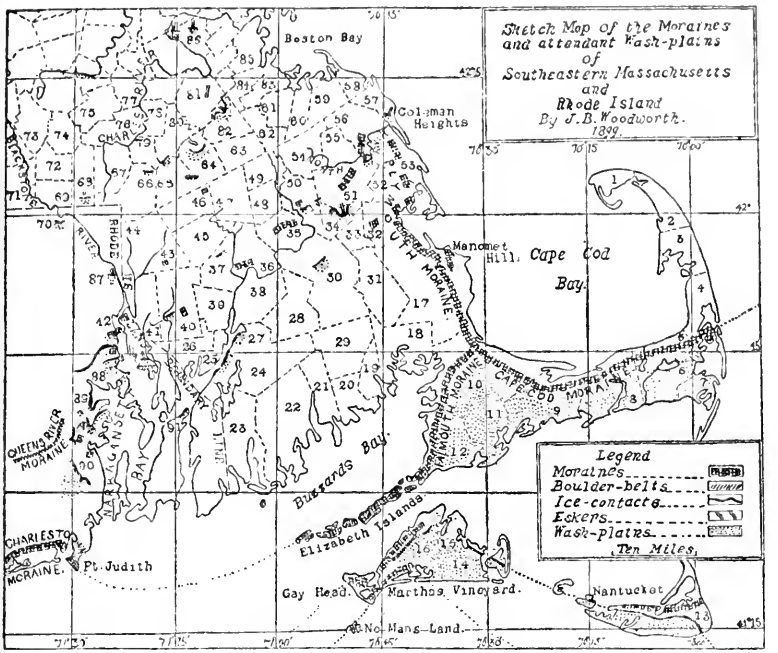
3. The alignment of the wash-plains as a whole is indicative of the retreat of the ice as a sheet characterized by stagnation only in isolated blocks and at certain stages of clogging with washed debris in and about its marginal portions. The excessive accumulation of this debris may have given rise to local stagnation in marginal portions of the ice base.

4. The extraglacial wash deposits assume forms explicable as deltas, fans and cones, some of the plains being

built approximately at water-level, some of the cones being built up above water-level. On the assumption that delta fronts are indicative of water-level, the very diverse altitudes of plains along the same line of retreat and in the same limited area separated in construction by the shortest possible space of time, makes it highly improbable that the water-level was also sea-level. It is more reasonable to suppose that the limit of construction of wash-plains was determined by the level of local bodies of water on a land area as claimed by Crosby and Grabau, or that, if the region was submerged, wash-plain levels have, as apparently held by Professor Shaler, no definite relation to sea-level.

5. As having a bearing on the rival hypotheses just named, an examination of the area shows that numerous blocks of ice remained long in the field to embarrass a land drainage and to produce temporary lakes.

The accompanying map, on account of its small scale, has not been made to show many wash-plains which surround ice-block holes. The features which are new are the morainal accumulations running northeastward from Providence and the line of plains following the same direction from Woonsocket in the northeastern corner of Rhode Island.



EXPLANATION OF MAP, FIG. 7.

The numbers refer to towns. Those mentioned in the text are as follows: 5, Brewster, east of which lies Orleans; 6, Harwich; 7, Chatham; 8, Dennis, west of which is Yarmouth; 9, Barnstable; 10, Sandwich; 11, Mashpee; 12, Falmouth; 13, Nantucket; 14, Edgartown; 15, Cottage City; 16, North Tisbury; 17, Plymouth; 24, Fall River; 27, Freetown; 28, Lakeville; 30, Middleboro; 33, Plympton; 32, Kingston; 34, Halifax; 35, Bridgewater; 36, Raynham; 37, Taunton; 39, Dighton; 40, Rehoboth; 41, Seekonk; 42, Providence; 43, Attleboro; 45, Norfolk; 46, Mansfield; 50, E. Bridgewater; 51, Pembroke; 52, Duxbury; 53, Marshfield: 56, Hanover; 57, Scituate; 64, Sharon; 65, Foxboro; 68, Bellingham; 70, Woonsocket, R. I.; 81, Dedham; 82, Canton; 86, Newton.

SELECTIONS FROM A NOTE BOOK OF MANASSEH CUTLER, ENTITLED "A DESCRIPTION OF THE ANIMALS IN NORTH AMERICA TAKEN FROM ACTUAL OBSERVATION."

MANASSEH Cutler was a man of many parts; clergyman, doctor, politician, pioneer and naturalist. Aside from Josselyn, whose quaint writings on the flora and fauna of New England were printed a century before Cutler's time, and which can hardly be classed as scientific work, Cutler was the first person in this region to give serious attention to the natural objects about him and the first to attempt to describe systematically the plants of New England; the results of his observations being printed in the first volume of the Memoirs of the American Academy of Arts and Sciences, where some three hundred and fifty species of "indigenous vegetables" are described.

Cutler made copious notes of the plants of this part of the county and several manuscript volumes of these notes are in possession of Harvard College. In addition, he recorded his observations on the fauna of the region as it came under his notice and one such volume is in possession of the Essex Institute. These notes may not be of any special scientific value or record any observations not already known to the zoölogists of New England, from a historical point of view. However, they do possess a certain interest as showing the lack of knowledge at the time they were made, in 1786, and that such facts as are recorded

were then of enough novelty to make it worth the while to record them. And there may, too, be some facts noted which bear upon the abundance or scarcity of certain species in those days as compared with the present time. It is thought that the selections from the notes here printed do not duplicate any of the material published in the admirable Life, Journals and Correspondence of Manasseh Cutler by Wm. P. Cutler and Julia P. Cutler issued in 1888. — EDITOR.]

A description of the animals in North America taken from actual observation by Manasseh Cutler, 1786.

Humming-Bird, June 10, '86.
Sparrow, Aug. 30.
Snow Flea, Jan. 2, 1787.
Nuthatch, Jan. 7.
Speckled Wood-pecker, Jan. 7.
Cod-Fish, Jan. 26.
Brown Rabbit, Jan. 31.
House Mouse, Feb. 27.
Speckled Owl.
Speckled Lizard, Apr.
Large Spotted Owl, Jan.
Gray Squirrel, April.
Red Squirrel, Apr.
Small Teal, Apr. 20.
Long-billed Snipe or Wood-Cock, Apr. 24.
Blue Bird, Apr. 24.
Wood Sparrow, Apr. 24.
Yellow Crown, Apr. 24.
Tom-teet, Apr. 24.
Crow Blackbird, Apr. 24.
Red-winged Blackbird, May 11.
Black Martin, May 14.
Woodcock, May 15.
Spoak, May 15.
Yellow Bird, May 15.
Old England or Golden Robin, May 16.
Cat Bird, May 16.
Cheeweeh, May 16.
White back Wood Pecker, May 28.
Killdee.
Moth, June 6.
Red Perch, May 27.
Fresh Water Pout, May 29.
Small Gull, May 7, 1791.
Ox Eye.
Small Brown Marsh bird, May 7.
Sea Rock Bird, May 7.
Sea Anemone, July 7.
Wood Duck, Aug. 17.
Pickerel, Aug. 29.
Night Hawk, May 7.
Sparrow, Sept.
Scolopax lapponica.
Azure coloured Dipper, Sep. 23.
Red Squirrel, Jan., 1792.
Winter bird, Jan. 9.
Black Headed Snow Bird, Jan. 9, 1793.
Mink, April 12, '94.
Coot, Sept. 24.
Lanius excubitor.
Vegetable Insect.

Humming bird. *Trochilus colubris* (?). 1786, June 10. On examining y^e^ visceræ I was surprized to find y^e^ heart so large as to be nearly equal in bulk to all y^e^ other visceræ. The hepatic gland was large in proportion to y^e^ body of y^e^ animal. The intestines were remarkably short. The gizzard contained a number of very small insects, partly disolved, y^e^ wings of which remained entire and appeared like those of misquetters. There were some extremely small seeds & a number of shinning particles, of a bright yellow, very minute, & as hard as stones, somewhat resembling ising-glass.

This bird flew into y^e^ house at a window, & was caught alive. The greatest pains were taken to preserve it alive. It was put into a small open-worked basket, but sufficiently large for y^e^ bird. It fluttered violently, for some time, from side to side, when it appeared to be languishing & was taken out & set at liberty in y^e^ room, but it soon died, living only three hours after it was taken.

Snow flea. *Podura nivalis.* 1787, Jan. 22. They frequently appear in the winter on the top of y^e^ snow, when y^e^ wind comes southerdly & snow gives, after a cold turn. Large spots will sometimes be black with them. They are commonly very sprightly. In woodland they abound most, but are often in y^e^ high ways, in great multitudes. They appear all at once, generally a little before noon, & disappear towards night — are rarely seen for more than one or two days — sometimes appear on very cold days. I have sometimes seen them in great numbers on banks of snow 6 or 8 feet deep, appearing suddenly about 10 or 11 o'clock & before night totally disappeared. The common people say they portend a thaw, & that y^e^ snow is going away, but it is not always the case. I have never known them produce y^e^ least sensation by biting, when continued ever so long on y^e^ naked legs, & conclude they do not

infest or receive their nourishment from any living animal, which is another reason for supposing they have no proboscis.

Cod-fish. 1787, Jan. 26. The generic characters correspond, but there is not an equal correspondence in y^e^ specific. May there not be a difference between the European & American? The fish from which the following characters were taken was caught in Ipswich Bay, about three leagues from y^e^ shore. It weighs with y^e^ entrails 35 pounds. It differs from the *Gadus barbatus* in not having distinguishable points on the lower jaw. The length of y^e^ body of this, and in general, is much more than three times its breadth. The first pinna of the *anus* is rather cartilaginous than bony. The cirrus is under the chin.

Crow Black-bird.[1] April 24, 1787. These blackbirds go in flocks in spring & Autumn — but are scatted about among y^e^ bushes in swamps, pond holes, & on streams of water during y^e^ summer, where they build y^r^ nests and rare y^r^ young. They are among y^e^ first birds that appear in y^e^ spring, & are often seen in midst of winter, in warm thawy weather in swamps, & about ponds. I once saw a considerable number of them in January, in company with a number of Robins on y^e^ south side of Gravelly & round ponds. It was a mild, thawy day, tho'

[1] Mr. Abbott says "Grackles early attracted the attention of the settlers in this country, not only because of their great number, but from an unfortunate habit which they then had of eating too much corn." The bird must have been much more abundant in Mr. Cutler's time than now, as writers of that time mention seeing them in great numbers and from Peter Kalm the Swedish naturalist who travelled in this country in 1748–51, we learn that a bounty was placed upon their heads and they were nearly exterminated. Later a worm made its appearance in the country and the people decided it was because of the destruction of the black-birds, and the war against them ceased.

It has since been found that they are very useful in the destruction of insects, as an examination of the contents of their stomachs proves, and they have ceased to be an annoyance to the farmer, except perhaps in the West, where they still injure the corn in the manner described by Mr. Cutler.— M. W. B.

y^e^ ground was mostly covered with snow. The winter had been very cold & severe, there was at this time a thaw, and y^e^ weather next day became very cold, & was afterwards very severe, with large quantities of snow. Near y^e^ places where I saw them were considerable Ledges of rocks, but y^e^ birds were among low bushes near y^e^ water & sang very merrily. When they congregate they are continually singing — they have a variety of notes, & make use of different notes when they sing together on trees than what they use when on y^e^ wing. A large flock on trees is excessive noisy, use a variety of notes, some very shrill, others grum like base; & it has often been observed by good judges that their notes, tho' so various & numerous, always make perfect cords.

They are exceedingly injurious to Indian corn. In y^e^ spring, when y^e^ young spines are just without y^e^ ground, they pull y^m^ up with their bills for y^e^ sake of y^e^ kernal at y^e^ roots, but they are vastly more distructive in autumn, when y^e^ corn is just out of y^e^ milk or become nearly ripe. Large flocks repair to fields after y^e^ upper stalks are cut, and sometimes before, in such numbers as to give y^e^ field a black appearance when they have settled down upon y^e^ corn. And there being, perhaps, 3 or 4 to an ear of corn, y^e^ husks are soon stripped into threads, and y^e^ corn plucked in part, and w^t^ they leave is spoiled by admitting wet & moisture which occasions mould. A field is sometimes almost ruined in a few hours. They are commonly shy when a person approaches them, & even firing at them in y^e^ field is to little purpose. The most effectual method to preserve fields, is to find y^e^ place where they retreat to roost at night, which is always in swamps & near water, commonly among thick alders. They collect in immense numbers from all quarters, for several miles distance, & place themselves in a very compact manner for their

nightly repose. The place being found a large number go into the bushes among them some time in the night, with guns, & discharge them as fast as they can load & fire, untill y^e^ whole flock is routed. The guns put them in y^e^ utmost confusion, & with an hedious noise occasioned by y^e^ notes of y^r^ wings among y^e^ bushes, like that of a rushing tempest, they rise from their beds in a body & make a precipitate flight many miles distant, & return no more for y^e^ season. After a successful Blackbird experdition, a sing bird is scarcely seen for miles around their roosting place during the remainder of autumn. The *red-wing Black-bird* sometimes associate with the *Crow black-birds*, especially in corn thieving.

Red-winged Blackbird. *Oriolus phœniceus.* May 11, 1787. In rainy weather y^e^ red does not appear so plainly on y^e^ wings, but they have a lightish yellow appearance. I think it is y^e^ same in very hot weather, owing to its being concealed by y^e^ feathers of y^e^ body just above y^e^ insertion of y^e^ wings, which are preaty long, falling over them. In a stormy day observed a large number, & was near them, which I was ready to take for another species, as I could see nothing of y^e^ red, but only a small yellowish spot, whether they were on the wing or sitting on trees — at length I killed one, which is y^e^ specimen I am now describing, & found the red had been concealed as above. I also killed his mate at y^e^ same time.

Black Martin. *Hirundo purpurea.* May 14. 1787. The specimen from which this discription is taken was found under a martin's house in my garden near y^e^ close of a long N. E. storm, in which much rain had fallen. It appeared to be in a dying state. I brought it into y^e^ house — the next morning it was dead. Whether y^e^ severity of y^e^ storm or some disorder was the cause of

its death I am uncertain. It had a great number of very large fleas. Their form different from y^e^ common house-flea, & they leap not so far nor their motions so agile.

These martins are new visitors in y^e^ northern states — they came from y^e^ southward & y^e^ progress has been gradual & easily marked. Generally advancing several miles annually. In 1765 they were plenty at New Haven — & about that time arrived as far as Hartford in Connecticut. But they were from that time to 1775 in advancing as far as this town. The first houses erected for them were in my garden, & they were not well stocked with tennants until 1783 or 84. They have now arrived at Portland, Casco bay. They build no where, to my knowledge except in y^e^ houses erected for them, & are fond of very gay habitations.

Wood Cock. *Scolopase Fedoa.* May 15, 1787. In y^e^ day time they keep about small runs of water in swamps & obscure places, where they are rarely seen. When they apprehend danger, they squat very close between bays, & in y^e^ grass, so that a person may almost get their feet upon them, being nearly of y^e^ color of y^e^ ground, before He sees them. Then take wing, & fly low to some distance, where they conceal themselves in y^e^ same manner. In y^e^ twilight of y^e^ evening they come out into open ground, — & sing with chipping note — after they have chipped, loud & distinct at y^e^ close of the note they make a croak in their throats. These notes are repeated a few times, when they rise, with a buzing or whistling noise made with their wings, much like that of a Partridge & ascend in to y^e^ air to a considerable height. After a circuitous flight for a few minutes, they return directly over y^e^ place from which they ascended, & begin their chippering note again very quick, & with this note descend perpendicularly, & settle on y^e^ ground with a few feet of y^e^ spot from whence

they rose. After chipping loudly & distinctly a few times, rise & descend again as before. These flight are continued thro' y^e^ first of y^e^ evening, and perhaps y^e^ night. By observing y^e^ place from whence they rise, & after they are goine up it [is] ease take a stand near the spot, & to shoot them after they descend, especially in y^e^ first of y^e^ twilight, before it is too dark to distinguish them.

Ox-Eye. *Charadrius* [now *Squatarola.*] In abundance on all our sandy beaches— remarkable for running— for they never walk. In running y^e^ legs are moved with surprizing agility & quickness — sometimes even on y^e^ edge of y^e^ surf — but frequently wander about single on high sandy beaches — they have a sort of peeping note — not noisy — rarely use their note except when pursued, & just as they take wing — they do not seem much inclined to collect in flocks. I believe some people call them *peeps.* They are remarkably fat at all seasons & well tasted, except a little fishy.

This spec^n^ killed at Beach at Nauhaunt.

June 13, 1795. In a sand hill on y^e^ great Beach in Ipswich, I observed several holes, which entered in an horizontal direction. Passing my cane into one of them I introduced nearly y^e^ whole length, but did not perceive y^e^ end. As I took it out a small swallow flew from another hole about 4 feet distant, & instantly another came out of hole into which I had introduced my cane. The wind being very high, & their flight quick I was unable to observe, with any exactness, their colour or size. I think their bellies were whitish & their size much less than y^e^ barn swallow. This is y^e^ first positive evidence I have had of Swallows entering those holes.

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 30. SALEM: JANUARY, — JUNE, 1898. NOS. 1–6.

THE FIRST HALF CENTURY OF THE ESSEX INSTITUTE.

AT the Annual Meeting of the Institute, May 17, 1897, it was, on motion of Vice President, the Hon. Alden Perley White, voted: "that, in the judgment of this meeting, the fiftieth anniversary of the founding of the Essex Institute ought not to pass without a distinct and emphatic recognition, and that the Council take steps to carry this vote into effect."

Not long after, the Directors took measures to secure, if possible, the presence of certain very desirable guests whose time was preoccupied and whose interest in the Institute made it proper to accommodate our arrangements, so far as might be, to their convenience. The Institute came into being on Wednesday, March 1, 1848.

At its quarter-centennial, the first Wednesday was the fifth day of March, and the first day of March was Saturday. Accordingly Wednesday was chosen, and the same course was followed now. This year, March came in on Tuesday and the first Wednesday was the second day of the month. It was determined to open our rooms to the public on the evening of March 1.

Later several distinct modes of celebrating the next day were debated, depending to some extent on our success in bringing home to Salem, for that day, the scattered sons of Essex County. It was at last determined that, as there was from the beginning an improbability that the United States Senators, or either of them, could be present, an uncertainty about the attendance of His Excellency the Governor, and a contingency as to the acceptance of the Hon. Joseph Hodges Choate which time only could remove, the commemoration should be planned on a modest scale, and should consist of speaking in Academy Hall, followed by a tea at Plummer Hall across the way. Large committees were organized, and at once undertook their several functions, and as soon as the plans became known the demand for tickets became overwhelming. It became evident at once that Academy Hall would not contain the members of the Institute desiring to be present, and generally they demanded that their families be admitted also. A change of base to Cadet Armory was effected, where there was room for all, and the question whether so large and undefined a number could be entertained at tea, though grave at first, soon resolved itself under the well-directed efforts of the ladies. It was voted to provide each member of the Institute with a ticket for himself and with one family ticket, and as many more of the latter as he wished to buy at twenty-five cents each. Every ticket bore a member's name. As the cost

was to be increased by these changes, it was decided to call on the friends of the Institute for a special fund to meet it. The response was generous, and the celebration made no inroad upon the limited income of the Institute.

The commemoration began at 7.30 o'clock on the evening of Tuesday, March 1. At that hour the Institute was at home to its friends. A fine illumination of the exterior made the building conspicuous and attractive. Under the coving blazed, in white incandescents, the first creative fiat LET THERE BE LIGHT. Below was displayed in high colors the seal of the Institute, eight or ten feet in diameter. From its Roman lamp burned an actual flame represented by a white incandescent, and the wreath of laurel which encircles it was studded with green incandescents. The seal is the work of the late Dr. George A. Perkins, who designed it and carved it in wood. This unique and novel representation of it was produced by Mr. Ross Turner, with the ready and enthusiastic coöperation of the Salem Electric Lighting Company, who also traced out the lines and angles of the building with incandescents in the national colors, and placed, between the windows on each side the entrance, large stars of white light which were very effective. For the rest, the mural decorations included the national flag, draped about the porch and main entrance, which was ablaze with light, and three pairs of well grown trunks of the native cedar of our hill-sides stood upright, one pair in the corners of the iron fence at the street entrance, one pair before the fine Corinthian columns of the portico, and one pair in the corners of the balustrade above. Fresh laurel in festoons was used with freedom. The two dates, 1848–1898, were displayed on appropriate escutcheons decorated with wreaths of actual laurel, the first a vernal green, the latter golden-bronze, each leaf of laurel in the wreath having been hand painted.

Upon testing the completeness of the work, it was found that the green incandescents in the laurel wreath encircling the seal, while producing a beautiful effect, did not properly light up the elaborate art-work of Mr. Turner, but were unable to cope with the power of the white flame issuing from the Roman lamp, before which they so far paled their uneffectual fires, that it was thought best to replace them with white, and this was successfully done. The seal, as shown, was a very beautiful object, and a very original design. Could we have thrown a strong light from some outside source upon it, as it was at first arranged, the effect would have been even finer. Our neighbors caught the contagion of the moment, and not only were the residence of David Pingree on the east with Plummer Hall and the Cadet Armory on the west generously lighted up with electricity and gas, and decorated with bunting, but the quarters of the Father Mathew Temperance Society, and the dwellings of Dr. Morse and of Major Peck on the other side of Essex street were equally so, and the whole block wore the gala air of a night in Venice. The Cadet Headquarters displayed, in front, a fine picture in colors of the original seal of the ancient corps, dating back to the Revolution. The weather throughout was perfect.

Between 7.30 and 10 o'clock, it appeared that 1734 persons passed through the rooms, in the first and second stories of the body of Daland house. The fire-proofs and all the third floor rooms were closed, though lighted. A large committee of reception, numbering twenty-five or thirty gentlemen, acted as guides and dispensed information to the visitors, most of whom had never before entered the building, and it is worthy of record that a careful examination, the next day, failed to show a relic broken, a glass cracked, a curiosity missing, a picture

defaced or any of the little injuries done, which might, in such a dense and pushing mass, have easily been excused. Five pieces of music from Jean Missud's Cadet Band contributed their cheerful strains: and pot-plants, flowers and other tasteful decorations made the scene a rare one.

On Wednesday, Cadet Armory began to fill soon after two o'clock and, at the opening of the exercises, contained between twelve and thirteen hundred persons. Several of the speakers and special guests from out of town had lunched with President Rantoul, at the Salem Club, and they reached the Armory at half-past two o'clock. A larger number of invited guests had met in the reception room of the Armory,— all the accommodations of the elegant quarters having been courteously placed at the service of the Institute,— and here strangers were made acquainted with each other by members of the reception committee who were in attendance. The stage was occupied at half-past two, and the stated exercises of the day began with the reading, by President Rantoul, of the half-century address which was as follows:

THE COMMEMORATION ADDRESS.

FRIENDS OF THE ESSEX INSTITUTE:

We are met to celebrate the golden wedding of the Historical Society of Essex County, formed in 1821, with the Natural History Society of Essex County, formed in 1833. These two kindred bodies came together on the first Wednesday of March, 1848, and, for half a century, have worked together harmoniously and well under the joint title of the Essex Institute.

The story of the Institute is unique. Starting without funds; relying always on the zeal and enthusiasm of those

who value culture for itself; growing up, with a spontaneous life, out of what seemed to be a recognized popular demand; the Institute has waxed sturdy and strong, and now would seem to have reached a crisis in its career.

The people of Essex County — the people interested in Essex County, living here or elsewhere — have come to regard the Institute as a place of deposit where everything typical of our heroic past, everything that can embalm the personality and keep alive the memory of actors in the scenes of long ago, may well repose in consecrated security forever. Not only valuable books and rare historical papers — the natural accretions of a great library — have been gathered here, but relics and manuscripts and pictures and ancient records — a priceless legacy to the antiquary and the student of local annals, rich material ready to the hand of the historian — have poured in upon us until our receptivity is overtaxed. Buried under the indifference or lost sight of in the greed of the modern Philistine, these relics spared by the tooth of time would have no ministering value to the public; but when rescued for the cabinets and archives of a well arranged collection, they become parts and most important parts of a great representative exhibit, picturing as nothing else can do — neither word nor pen nor brush — the actual domestic life of the New England that is gone. To rear and worthily to care for such a mausoleum to the past requires labor and thought and funds. Especially does it require ever-growing space. Thus far our collections have increased unchecked. Still the monumental pile mounts higher. Would we have it less? Does the pride of ancestry in Essex County — does the love of the heroic in Essex County crave nothing further? Have we a surfeit of hereditary honors? Shall we cry, hold! enough! Only ten years ago, the munificence of the late William Burley

Howes made it possible, for the first time, to gather the riches of the Institute under a roof-tree of its own. At that time, we had increased the splendid accumulations of the Historical and Natural History Societies by large donations from the private libraries of our first President Judge White, of Colonel Francis Peabody our third President, and of our townsman Augustus Story, as well as by an incomparable store of historic paintings, ancient manuscripts, sea-journals and log-books, and of specimens illustrating the Natural History of Essex County,— curious reminders of the life and manners, the traditions and scientific knowledge of our colonial and commercial eras. For the first time in our history the Institute was able, ten years ago, to display its wealth; and such was the stimulus imparted to public interest in our pursuits, that our lectures and social evenings became popular, our donations multiplied, and our rate of growth became so great that, as a result, our wall-space and floor-space and shelf-room are exhausted. What to do next is the problem of the hour. Literally we know not whither we should turn. We must have money,— money and a good deal of it. The need is a present one and not a prospective one. The practical question is this: Will the friends of the Institute, who have means to spare for objects such as ours, give us a portion of it, or will they see us succumb to plethora and congestion and so die? No room to grow! What will become then of the zeal and enthusiasm of those friends of a lifetime who take a daily pride in our success? No room to grow! We have in hand magnificent offers. One of them I am about to read. It is one of four or five of scarcely less interest and importance. It is one of the most splendid offers a museum of history and art could wish to have,— a gift

which naturally belongs to Essex County. There is no gallery in the world but would be eager to secure it. Shall we allow it to pass into alien hands because we have no room to grow? To say that such an enterprise as ours must grow or die is something more than rhetoric. Either we must provide ourselves at once with largely increased facilities and means, or the character and general scope of the Essex Institute must suffer a sea change.

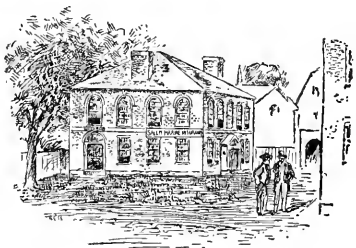
The Institute has passed successfully its formative stage, — its period of mere accretion. What it now craves is the opportunity to unfold its treasures, to utilize its wealth, to make available its vast assets. I cannot bring myself to believe that, at this stage of its development, the Essex Institute is to experience a check. I cannot suppose that here in this birthplace of Massachusetts the people of this ancient county — one of three Counties first set apart in 1643,— a people strong, numerous, wealthy and progressive, have carried forward such an enterprise as this to its present advancement, only to let it fail,— that we are ripening only to decay. The devotion and self-sacrifice of which it is the fruitage forbid the thought. The prayers and blessings of those who have pushed on this undertaking until it stands looking wistfully over the threshold of the coming century, have consecrated us to their work and we must not turn back. The past at least is secure. The record of our achievement best vindicates our right to be. It is not enough that we have striven to give form and body to the aspirations of the times. Other activities might claim as much. Not what we have essayed, but what we have achieved! Could some other agency do it better? In the educational enginery of Massachusetts is there no room for us? Are we not effecting something worth effecting, which, if we forego our efforts, will not

be done? The eminent men who founded our school system never meant it for a finality. They made it as far reaching, as elastic and as comprehensive as they might, but they meant to leave broad vistas open towards something beyond. A voluntary association like this which trusts so largely to personal initiative and leans so little upon mechanical aids, — which avoids so well the Scylla of sciolism whilst yet escaping the Charybdis of conventional mannerisms and methods, — must be of all others the accepted means to hold in check the school machinery of the State, should it ever turn its energies to stamping the dead-level impress of the numerical majority upon all alike.

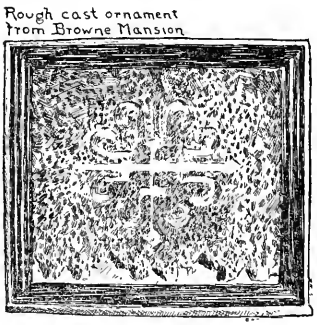
What we have accomplished may be briefly told. Our published Historical Collections have reached their thirty-fourth volume. Since 1859 we have published yearly, besides occasional monographs, about three hundred pages. These contain material of a character common to such issues, except for this, that it is strictly local to Essex County. These volumes are cited with respect, and their high authority will be recognized when I say that they are the work of such contributors, of more than local fame, as Professors Herbert B. Adams of Johns Hopkins and Emerton and Wendell of Harvard, of the Reverends Jones Very and Charles T. Brooks, of the two Uphams, father and son, of the Honorables Leverett Saltonstall and Eben F. Stone, of Captain George H. Preble, of the United States Navy, of Dr. Joseph B. Felt, of Henry Wheatland, of Henry F. Waters, of Abner C. Goodell, of Matthew A. Stickney, and of William G. Barton. The temptation to recite the list of local authorities to whom we owe so much of our success, is well-nigh overmastering, but I must refrain. A score or two of the most approved writers this neighborhood has produced in our

century, would be found to have furnished us with the mass of our material and with much of our prestige.[1]

Since its establishment in 1848 the Institute has issued six volumes of its Proceedings and twenty-eight volumes of its Bulletin, and these contain, together with its current transactions, scientific papers of high authority and value numbering two hundred and ninety-six articles, besides minor contributions, covering an infinite variety of topics of greater or less importance, for the most part related to the Natural History of Essex County; and the work of one hundred and forty-nine writers, amongst whom I find such names as Agassiz, Fitch Poole, the Uphams, Alexander Bell, Jones Very, Russell, Silsbee, Wheatland, John Robinson, Professors Wright, Dorsey, Emerton, Fewkes, Garman, Crosby, Putnam, Hyatt, Morse. The "American Naturalist," a scientific magazine in good standing, was established by the Essex Institute in 1867.



Pickman Place.



Rough cast ornament from Browne Mansion

[1] To a little venture called the "Weal Reaf" printed in 1860 at a fair for the benefit of the Essex Institute, Nathaniel Hawthorne contributed a delightful reminiscence of Browne's Folly. During the period when his genius was maturing, — say from 1825 to 1845, — he spent much time in the Historical Society's Rooms in Pickman Place, and filled his note-books with what he saw there. Many of our treasures will be found described in the "American Note Books." Especially has he used a bit of rough-cast from the old Browne Mansion, built in 1698, which he found preserved there, for a mural decoration of the "House of Seven Gables," where it will be recognized, twice described to the letter, in Chapters One and Thirteen. We have it still.

The Institute has for twenty-five years, succeeding the Lyceum in the field of oral popular instruction, conducted annual courses of free public lectures. It has always held frequent evening meetings, and of late fortnightly meetings throughout the winter, at which members and their households have met to consider and discuss papers on local topics of history and science. These papers have furnished a large part of the material printed in our two serial issues.

At its lectures the Institute has enjoyed the honorable distinction to introduce Professor Bell and the Bell Telephone to the notice of this utilitarian age,[2]—and to present to its members at different times such eminent strangers as Dean Stanley, Dr. William B. Carpenter, Canon Kingsley, Wilkie Collins, and Matthew Arnold, together with such local celebrities as Chief Justice Chase, Professors Rogers and Gray, Agassiz and Dr. Holmes. It has celebrated most impressively the 250th Anniversary of the landing of Endecott, as the Historical Society, its predecessor, had celebrated the 200th Anniversary of that event; it has commemorated the 250th Anniversary of the landing of Winthrop, and the 200th Anniversary of the witchcraft frenzy, and the 50th Anniversary of the founding, at Topsfield, of the Natural History Society, and the 75th Anniversary of the Historical Society's beginning, and the 100th Anniversary of the vote of Massachusetts, passed by the Assembly at Salem, a year before Bunker Hill, which Mr. Webster said made this colony independent of Great Britain. Through its picture and flower and microscope shows, and concerts, and entertainments, it has done its share towards bringing high culture and sound learning and useful knowledge within the reach of everybody.

[2] See Bulletin, Vol. IX, pp. 21-8.

The ladies have formed, and have sustained with spirit for several years, a Local History Class of from fifty to sixty members, meeting every week, and investigating topics of interest through special committees, whose reports are read and placed on file and form a valuable record.

For forty odd years the Institute has sustained a series of field-meetings, modelled in some sort on those of the Scottish Naturalists' Club of Berwick-upon-Tweed. At these, we have held gatherings ranging in attendance from one to four hundred persons, visiting seventy-three localities in every one of the thirty-five towns and cities, and in almost every parish, in the county, besides a dozen spots beyond the county lines.

The mass of material piled up in Daland House and Plummer Hall must speak for itself. Neither as to quality nor as to quantity is it possible, in the moments allotted me, to do it justice. I shall not attempt it. If our friends will pay us the honor of a visit they will discover not indeed all our wealth, because we have been obliged to resort largely to warehousing, by the outside storage of choice volumes not in constant use; but they will find Daland House packed from attic to basement, and Plummer Hall, of which we occupy the basement, the first floor and the attic, equally overfull. We suppose ourselves to be in possession of between seventy-three and seventy-four thousand bound volumes of books — our collection of pamphlets and unbound volumes has reached the very extraordinary figure of two hundred and sixty-one thousand. The list of libraries in the country having such a catalogue of books is not a long one. In the forty-five States of the Union there may be thirty-eight libraries containing upwards of seventy thousand bound volumes, and there are but very few indeed containing one-half our

quantity of unbound volumes. Of libraries in the United States containing twice our number of bound volumes there are but twelve.

Aside from the great aggregations of Harvard University, and of the Boston Public Library, Massachusetts has but four collections of bound volumes larger than ours, and all New England has but six. Scarcely wall space remains to hang the valuable pictures constantly committed to our care, and shelf room for new accessions of books is only made by boxing and storing those which fill our alcoves now. These accumulations have been piling up since 1820, but mostly within the later years. Many of these deposits are of a value not to be described. If we got rid of all our duplicates by exchange or sale, and gave to the flames such elements of the great mass as might fairly be thought to be of doubtful worth, there would then remain to us a collection quite beyond our present means to utilize or display, and which, if classified and catalogued and arranged, would prove to be, in its special features, without a peer. No county in New England,— no equal tract of densely peopled territory in America, outside of the great cities, can make such an exhibit of its historic past as this. Should we eliminate relentlessly from our treasure-house all the costly and inestimable art-works, and books of whatever value, helpful to general culture, but not bearing exclusively upon Essex County, we should then retain an exhibit of the local history and tradition, the biography and natural history, the genealogy and ancestral records, the literary, scientific and artistic eminence of this county of ours which would make it — I speak with a pretty thorough knowledge of the subject, and a careful estimate of the value of the words employed — which would make it the envy of any equal population in the land.

The Institute counts five presidents amongst its honored dead. They are men whose names are in themselves a legacy, — Daniel Appleton White, Asahel Huntington, Francis Peabody, Henry Wheatland, Edmund B. Willson. Undoubtedly the Institute owes its origin to Henry Wheatland, who was its organizer and its secretary for twenty years, before his presidency of twenty-five years began. He had been an honored member of the old Historical Society, and was the creator of the Natural History Society. He brought about the union of the two, and, with untiring labor and unremitting thought, welded their elements into the substantial structure which he left, forty-five years later, ready to our hands.

The list of our contributors — the list of topics treated in these seventy odd volumes of ours — is quite too long for introduction here. Figures tell little except to those who know their secrets. The best names in Essex County will be found to grace our pages. Besides memoirs of our leading men, prepared by Judge Lord, Dr. Briggs, Charles W. Upham, the Rev. Mr. Willson; besides commemorative addresses delivered by Judge Story on the two hundredth, and by Judge Endicott on the two hundred and fiftieth, anniversaries of the landing of Endecott; by Abner C. Goodell, jr., on the Historical Society's half-century anniversary and on the centennial of the meeting in Salem of the First Provincial Congress of Massachusetts Bay; by James Kimball, whose grandfather was an actor in the scene, on the centennial of the destruction of the tea in Boston Harbor; besides commemorations of the fiftieth anniversary of the Natural History Society, with a review by Professor Morse of the progress of natural science during the last half-century; of the two hundred and fiftieth anniversary of the landing of Winthrop; of the twenty-fifth anniversary of the

Institute's founding and of the seventy-fifth anniversary of the founding of the Essex Historical Society, — besides all the contributions to local science already enumerated, the Institute has received and printed contributions to its Historical Collections from one hundred and seventeen writers, on three hundred and eighty-two topics of local history, biography and genealogy; has contributed conspicuous features to both the World's Fairs at Philadelphia and at Chicago; has for thirty years past had on deposit with the Peabody Academy of Science a collection of specimens in natural history, covering every group of the mineral, vegetable and animal kingdoms — in several important features possessing exceptional value — and together forming the basis of an exhibit of the natural history of Essex County probably unequalled by any collection drawing on so limited a population anywhere; has established, through its publications, an exchange list with kindred bodies all over the world, numbering between two hundred and sixty and two hundred and eighty; has accumulated on its shelves a library of the works of Essex County authors now counting nearly seven hundred volumes, an art library equal in numbers, a China library nearly as large, the gift of Mr. Hunt, perhaps without a rival in size and quality in the country, a rare collection of log-books and sea-letters and ship's journals and owner's instructions of privateersmen and merchantmen, detailing the thrilling story of more than four hundred voyages, during our romantic commercial era. It has set up and preserved for all time what we believe to be the skeleton of the earliest meeting-house, erected on this continent for congregational worship, by an independent society gathered on the spot.

For several seasons, gatherings were arranged which brought together scores of microscopes, and led to a dis-

cussion of their relative merits and characteristics, and to an examination of the home-products of land and sea, by such specialists as Dr. Holmes, Prof. Jeffries Wyman, Dr. B. A. Gould, Rev. E. C. Bolles, Caleb Cooke, the Messrs. Scudder, Morse, Hyatt, Tracy, Phippen and Bicknell. Frequent exhibitions of art work have been afforded the public under our auspices, but perhaps the salient feature in the career of the Institute, after the field-meetings, has been the series of famous fruit and flower shows, sometimes held weekly, which for many years it was enabled to sustain. No neighborhood had more reason than this to boast of the affluence of its private gardens. Native and exotic fruits and flowers loaded the Society's tables in exquisite profusion, when our departments of horticulture and of botany were under the patronage of Francis Putnam, John C. Lee, Joseph S. Cabot, Stephen C. Phillips, John Bertram, Charles Hoffman, Ezekiel H. Derby, Thomas Spencer, Robert Manning, John Fiske Allen, George D. Phippen, and Ives and Ropes and Oliver and Emerton and Rogers and Russell and Upton of Salem, and Oakes of Ipswich, and Perry of Bradford and Nichols and Fowler of Danvers, and Prescott of Lynn, and Appleton of Gloucester. Just as the scientist ceases, after a while, to be content with broad generalizations which embrace a continent, and gives himself over to pursue with microscopic scrutiny the problems of some section nearer home, whose secrets are within his reach, — just as the specialist, in despair of mastering the whole field of human knowledge, applies himself with unimpaired activity to some tempting nook which he can make his own, — just so the Institute has striven to stimulate in Essex County a healthy appetite for local things,—to create a literature having a strong local flavor, not without its interest to the outside world — for the county is a rare

one — but possessed of an absorbing and abiding charm for every child of Essex County. That we have not wholly succeeded is to say that we are human. That we have not wholly failed is witnessed by no less than thirteen historical and scientific societies of a local character, self-sustained to-day in the various municipalities of the county, working on our lines, and almost all of them looking to the Institute as their fountain head.

This is the goal for which the founders strove. It is the science of every-day life; it is the tradition gathering about these moss-grown roofs, these ancestral acres, these familiar streets; it is the home-bred heroisms, for which they crave a thought. To the slight extent to which our history and science impinge upon the history and science of the world at large, they will be garnered for us out of hand. But to the much greater extent to which our daily lives are quickened by a knowledge of what is special to our surroundings and common to no one else,— if we would reap this harvest we must till it for ourselves.

Conscious that no history was more inspiring to them, no experience more edifying, than such as their ancestors had here wrought out; feeling that the heroisms of the past should be kept in perpetual remembrance by the creation of bodies like this, which should cherish the gathered relics and reminders, should accumulate books and autographs and pictures, and should publish records, and observe anniversaries, all to the end that the children may remember what the fathers did; persuaded that in the study of nature, whether animate or inanimate, the mind rises to one of its grandest functions, — they decreed that, so far as in them lay, no child of Essex County, prompted by a longing to come in closer touch with the wonders and the beauties flung broadcast about us, — with the scenes enacted on our soil,— should fail of its desire. Aware

that local topics like our own history and traditions, like our own botany and geology and mineralogy and entomology, must be taught and mastered by ourselves, or else lost sight of in the absorbing interests of the greater world at large, they decreed that, so far as in them lay, no young enthusiast should be without a Mentor if he had time and thought and energy to devote to these pursuits in Essex County. The numbers of scholars holding conspicuous rank in natural science to-day, who gladly own a debt of gratitude to the Essex Institute for their first glimpses into the glories and the mysteries,— into the grand arcana of this Universe of ours, furnish an ample vindication of our right to be. No friendly soul who has taken any share in the formative labors of our past, — no observer who has a just perception of what we are doing to-day, is able to think of this organization but as a vitalizing, an advancing, an enduring force. It cannot be that all this enthusiasm and devotion is to come to naught. It cannot be that the people of this county, trained for two generations to look to us as the custodians of their ancestral fame, are to be bidden to seek out some other depository for their historic wealth, — must find some other shrine whereon to lay their offerings to the manes of their dead.

Would that there were time to recall the honored names that grace our records, beginning with Holyoke and Bowditch and Story and Pickering and Cutler and Dane and White and Silsbee and Saltonstall and Peabody and Ward and Pickman and King and Merrill, who created the Historical Society, down through the younger generation of scientists who sustained the Natural History Society and the Institute, until we reach the workers of to-day. The catalogue would be luminous with the brightest names. I suppose those familiar with the inner workings of the Institute in our generation will mostly agree that, next

1821 Apr 9

We the subscribers agree to form ourselves into a society to be called The Essex Historical Society the object of which shall be to collect and preserve in a suitable place in the town of Salem, all such manuscripts and documents as shall serve to illustrate the history of Salem and the other towns in the county and also biographical notices of the most distinguished inhabitants of these towns:—and we agree to meet forthwith and establish suitable by laws and regulations. Salem, April 9th, 1821

Edward Augustus Holyoke
Joseph Story
Nath^l Bowditch
Jacob Ashton
John Prince
Leverett Saltonstall
Benj Pickman
Tho^s C Cushing
Ichabod Tucker,
Benj^n Balch
J. S. Appleton,
Benj^a R. Nichols
Jn^o Pickering
Stephen White
Thomas Carlile
Walter C. Johnson
George Cleveland
Joseph Aug^s Peabody
William Gibbs
J. Tho^s Coyall Barwoff
C. C. Clarke
G^o A. Ward
Benjamin Merrill
Frederick Howes
John Brazer
D. A. White
Jn^o Glen King
Gideon Barstow

Twenty nine subscribers

The original subscription paper was drawn up by Benjamin Ropes Nichols esq and handed to the several gentlemen by George Atkinson Ward

to Dr. Wheatland, the most valued patron we have had in the years just closed, was Mr. Hunt. His devotion to our interests, in season and out of season, his promptness to respond to every call, his judgment, his good taste, his interest in art, his enjoyment of the beautiful and his yearning that all should share that pleasure with him, have taken form in a stream of costly and laborious benefactions only checked by death. But the hour is too short. I detain you no longer from the pleasure which is in store for us, except to read the letter I have promised. It will be perceived by every well-wisher of the Institute to be a communication of capital importance; others, only less significant of what our future may become, might be presented if the delicacy of our intended benefactors would permit. I cannot suppose that the people of the county will prove indifferent to such a trust. I dare not but suppose that they will rise to an appreciation of the forces that have sustained the Institute for fifty years, — that they will rise to the opportunity which opens before them to put upon a stable footing an enterprise so unique, so hopeful, and so competent to correct the tendency towards machine methods which threatens the educational systems of to-day.

Whatever the coming years may have in store for the Essex Institute, it is certain that devotion and enthusiasm such as have crowned the now-accomplished lustrum will not be wanting, amongst our actual working force, to achieve the next. Whether we shall be enabled, through the generosity and high spirit of this ancient county, to press on to higher aims, or whether we must be content with what we have, and indulge no further outlook save to hold our own, I can speak for those who have borne the heat and burthen of the day for at least a generation, — for at least that period I have known the Institute as a

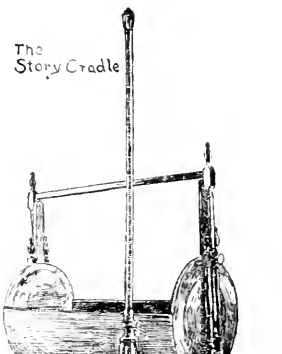
daily burthen and a daily incentive, — I speak for them and all of them when I say that no effort of theirs will be lacking to make the future worthy of the past.

The President then read two letters dated at Rome, the first, as he said, to show the feeling entertained for us by the Sculptor Story just before his death, as evinced by the deposit, for perpetual preservation in the Institute, of a cradle in which he and his distinguished father, Judge Story, were rocked in infancy. This was as follows:

PALAZZO BARBERINI.

MY DEAR MR. RANTOUL AND
GENTLEMEN OF THE ESSEX INSTITUTE:

I have just received your most kind and flattering letter of Nov. 19, and I beg to express my warm thanks for the cordial terms with which you accept my little gift of the old cradle.



It comforts my heart to hear that my Father's memory is so warmly cherished in Salem. He always had a deep feeling for the town and, as I well remember, quitted it with great regret and only because he deemed it his duty to do so in order to secure for Harvard University the Donation of Mr. Dane — as Mr. Dane had made it a condition of his gift that my Father should accept the Professorship of Law and go to Cambridge to reside.

For myself, Dear old Salem has my strong affections. It was my birthplace — the days of my boyhood were spent there — and I retain for it only the most affectionate associations and memories. Often in my dreaming and musing hours I go back to it, and long again to see the streets and to renew the old and vivid recollections which still are fresh and living in my mind The boyish memories last forever, and have a charm unsurpassed by those of a later age.

I wish my little gift were more worthy of your acceptance, and small as it is, I am, I confess, deeply pleased that you have so kindly

given it a place in the Institute, and that you have also given my name a place among the many far more distinguished ones of the dear old City of Peace.

With best wishes I am,
Yours most faithfully,
W. W. Story.

Dec. 26, 1894.

The second letter read was this :—

Palazzo Barberini, Rome.
August 27, 1897.

To the Hon. President:
Robert S. Rantoul,
Essex Institute,
Salem, Mass.,
My dear Mr. Rantoul:—

* * * * * * * * * *

My father left to me all the original plaster casts of his statues in his studio in Rome. It is my desire to present these works to the Essex Institute at Salem, and I have much pleasure in offering, through you, as a gift to the Institute, the only collection of original plaster casts of Statues and Busts executed by my father, W. W. Story.

My father was born in Salem, and he always had the greatest affection and regard for the old Town. I therefore feel sure that in making this offer I shall be carrying out his wishes, and I also feel certain he would have been most gratified to know that these statues — his life's work — had found a permanent and suitable resting-place in his old home.

My desire is to present all his best works — there are some twelve to fifteen or even more statues — some life-size — some even larger, besides other small statuettes,— also many busts of distinguished men and women. All these I would give, provided the space allotted were sufficiently large properly to accommodate them. When I know what room the Institute can dispose of, I shall be better able to judge what number of casts could be becomingly exhibited. The only stipulation I would ask to be allowed to make is, that this collection should be properly and becomingly exhibited together in some permanent and befitting building: and that no copies or reproductions of whatsoever size or description should be made of these works. If the space were sufficient I should have much pleasure in presenting the entire collection.

Permit me, in conclusion, Mr. President, to have the pleasure of formally making this offer, through you, to the Essex Institute.

Hoping to hear from you at your convenience,

I have the honor to sign myself,
most cordially and respectfully yours,
WALDO STORY.

What shall we say to that? asked the President. We have no room! The President then said: I promised to read you a letter. I have done better. I have read you two. I will do better still. I will read you two more. I will read them in the order of their dates and you shall judge for yourselves of their relative importance. The first calls upon us to give free lectures — just what we are doing. The second calls for more room. Here are the letters:

SALEM, FEB. 26TH, 1898.

HON. ROBERT S. RANTOUL,
PRESIDENT OF THE ESSEX INSTITUTE,
SALEM, MASS.

DEAR SIR:—

At a meeting of the Salem Lyceum held January 24, 1898, the committee appointed at a previous meeting to consider the matter of presenting to the Essex Institute the funds of the Salem Lyceum, reported in favor of so transferring the funds, and, as part of their report, submitted a petition and bill to be presented to the Legislature of this Commonwealth, asking for a dissolution of the Salem Lyceum corporation and authority to transfer its funds to the Essex Institute, to be safely invested by said Institute, and the income thereof to be expended each year in maintaining a course of lectures to be announced by said Institute as being maintained by the "Salem Lyceum Fund."

On motion it was voted that the report of the committee be accepted and adopted.

The petition and bill above referred to were presented to the Legislature, and I am happy to inform you that the bill has been duly enacted, and that under the authority thereof the funds of the Salem Lyceum amounting to three thousand dollars ($3,000.00) will be paid over to the Essex Institute, subject to the conditions of said act.

Very truly yours,
EDW'D C. BATTIS,
Secretary.

March 1st, 1898.

To the Hon.
Robert S. Rantoul,
President of the Essex Institute,
Salem, Mass.

My dear Sir:—

I avail myself of this half-century anniversary to say publicly to the Institute what my friends have known before, that all the antique furniture, portraits, old china and glass now in my house in Lynde street will be ultimately deposited with the Essex Institute for perpetual preservation.

The portraits which form a part of the gift are mostly in oils, and these may perhaps derive an additional interest from the fact that they include the likenesses of ten generations of my family, all Salem people.

Trusting that the celebration will be all that the friends of the Institute have hoped, and that my intentions may be consistent with the purposes of your Board of Government,

I am very respect. yours,
Geo. R. Curwen.

This offer, like the others, was loudly applauded. Mr. Curwen sat upon the stage with two others of the charter members of the Institute, Messrs. Willard Peele Phillips and Robert Manning.[3]

The President then said:

There are some friends of the Institute so conspicuous that their absence needs to be accounted for. When we celebrated the two hundredth anniversary of Endecott's landing, Governor Lincoln was present, and when we celebrated the two hundred and fiftieth anniversary of that event, Governor Rice was present, and when we observed the twenty-fifth anniversary of the founding of the Institute, Governor Washburn was present. We had hoped

[3] Six others of the original members are known to be living, and letters were received from five of them, viz: Charles W. Palfray, J. Hardy Phippen, Henry M. Brooks, Isaiah Nichols, E. S. L. Richardson.

that His Excellency Governor Wolcott[4] would be with us to-day, but I have here a letter in which, after a most cordial acknowledgment, His Excellency says:

> The occasion, I am sure, will be an interesting one and it would give me much pleasure to be present, but the date falls upon the regular day of meeting of the Council and I have never permitted any other engagement to interfere with my presence at these Council meetings. Therefore you will please accept my regrets, and believe me
>
> Very truly yours,
>
> ROGER WOLCOTT.

President Rantoul here presented General Appleton of the Governor's staff, — a Vice President of the Institute, — who was in uniform, being detailed by His Excellency to respond for the Commonwealth.

General Francis H. Appleton, of Governor Wolcott's staff, being introduced, said that as His Excellency was unable on account of important business at the State

[4] Only two Governors of Massachusetts have ever lived in Salem. They were Endecott and Bradstreet, and they happen to be the first and the last in the line of colonial governors. The Cadet Armory and Plummer Hall stand on an estate more or less identified with both of them. There is reason to think that it may

House, before the Council, to be present, the Governor had delegated him to represent the Commonwealth, and to convey his regrets that he could not attend so notable an occasion.

General Appleton expressed his own gratification at being permitted to come back to his former home, Salem, in this capacity, which he esteemed a high honor.


Bradstreet

He regretted that he must present himself in a somewhat antiquated, but so historic, form of uniform, which he hoped he might soon have an opportunity to present to the Institute, not as a relic of himself but as a reminder of the many brave officers who have fought for the Nation's unity in this dress; but General Miles has just proposed a dress of new design far better adapted to the needs of the service.

General Appleton then said:— The value of institutions, like this Institute, to a State and Nation cannot be too highly spoken of; it advances the idea of value of history and art, as a power in promoting cultivation in man, and a more cultivated taste among people generally.

have been assigned in the first instance to Governor Endecott. (Bulletin, Vol. I, p. 79; Historical Collections, Vol. XXIV, p. 244.) It certainly was the domicile of Governor Bradstreet, for in 1676 he married the widow of Captain Joseph Gardner, a niece of Governor Winthrop, who had it for a marriage portion, and here, Bradstreet, who had landed in Salem with Winthrop in 1630, came back to pass the closing twenty years of his life, and to die and be entombed in 1697.

On this estate, from 1836 until 1867, lived Colonel Francis Peabody with his wife Martha, and she was an Endicott descended, in the eighth generation, from the Governor.

Governor Wolcott married a granddaughter of William Hickling Prescott. Prescott was born on this estate. She was also a granddaughter of Joseph Augustus Peabody, and for him the Peabody mansion, now the Cadet Armory, was built in 1819, and he lived in it until his death, when his brother Francis took it. The Governor, had he been present, would have found himself on friendly soil.

Such influence as emanates from an institution of the character of yours promotes an instinctive desire for, and a respect towards, law and order in any community.

The history and heredity of our people must be made the most of; such characteristics as are found in the history and historic things of Essex County, are truly capital to any locality; and are as essential to the best results, as is a sound and golden rule of value.

The influence of such collections and library as you have, and seek to accumulate, here in Salem, is by no means confined to Essex County, nor to this historic State of Massachusetts; you have been leaders, in your line, at the largest exhibition of this country at Chicago, in the interest of both State and Nation, and thereby set a standard before the public that carried your name and fame beyond the bounds of this Nation.

Our eastern coast boasts of more accumulated history than elsewhere in our Nation; and the children, who have gone from us, west and south, are proud of that history because it is theirs also.

Besides collecting our relics in-doors, let us be the medium of preserving relics out-of-doors.

So far as is possible, and besides some interesting houses in old Salem Village, let spots in nature's landscape, that mark the life of men and women who have lived to help us by their wisdom and example, be preserved to continue to help us by a bright remembrance of the lives there lived; as, Mr. Eliot, you have done in Cambridge at the Longfellow home, and are trying to do at the James Russell Lowell estate. A like work has been accomplished at the early home of Whittier, and in some other Essex County spots.

May you also promote the preservation of spots now beautiful from what nature has made of them; and may

your speakers and writers encourage richness in the appearances of our farms, so far as our rugged soil will allow, in the hope that the dress of Mother Earth may be of the best and what she well deserves.

President Rantoul, with the best wishes of the Commonwealth, may the Essex Institute, after this its fiftieth birthday, continue, as now, always to deserve the confidence of the people who have ties to Essex County, and of all others; may the help that comes to you from a large membership with modest annual dues forever continue and increase; and may those who can give more largely during life of money, relics, etc., or after death by will, believe, as I do, that this Essex Institute, founded by men to whose memory we can all bow in reverence, is always to continue sound, as to its historical, and in its financial, management, to the honor of Country, State and Nation.

The President then said: It may not be generally known that we came very near having the Massachusetts Bay College established in our neighborhood. We came just as near having it named Scruggs College instead of Harvard College, and so we should all have been looking forward to the degree of LL.D. of Scruggs, and not to the degree of LL.D. of Harvard. The facts are these. One Thomas Scruggs, as early as January, 1635–6, got possession of a part of that beautiful meadow lying between Swampscott and Marblehead, and looking out on the Bay, and now dotted over with summer villas. It was a favorite resort with Hawthorne, and is often referred to in the "American Note Books." Having got the delightful tract into his hands, Scruggs negotiated in April with Captain Trask, our Massachusetts Bay Miles Standish, and received in its stead a farm at Bass River near Wenham Pond. His object in the transaction was to secure

a site which was satisfactory to Rev. Hugh Peters of the First Church, and to the other members of the first Board of Education, who were "to take order for a colledge." A long negotiation ensued, which resulted in the establishment of the College at Newetowne, now Cambridge, in November, 1637.

Mr. Scruggs was a man of substance, of influence, and of public spirit. He was a man of independent judgment also, for he was later disarmed for an opinionist. And a good deal more might be said for Mr. Scruggs.[5]

I have the honor to present my schoolmate, my classmate, and, I think I may add, my life-long friend, the head

Note 5.

This is void by the grant of an other farme in Leiwe of this to m[r] Scrugs.

ii of the 11th moneth 1635

Granted by the ffreemen of Salem [*vnto*] the day and yeare above written vnto m[r] Thomas Scrugs of the same his heires and assignees for ever a farme conteyning three hundreth acres of land whereof thirty acres are litt to be mowed scituate lying and being in the outmost bounds of Salem towards m[r] Humphries and is from the Sea where the freshe water runs out, West and by North is the fearme next to m[r] Humphryes bounded by the Comon by the North west end & East end —— provided alwayes & in Case of Sale, the towne of Salem haue the first profer before any other.

JOHN ENDECOTT
ROGER CONNUNGHT
JOHN HOLGRAVE
THOMAS GARDNER
EDM. BATTER

At a gen'rall Court or towne meeting of Salem held the second of the third moneth called May A° 1636.

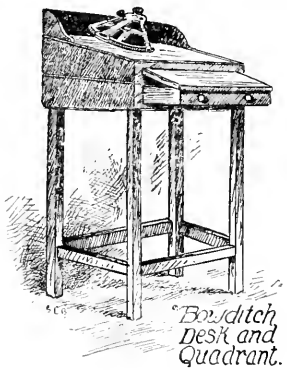
Imprimis after the reading of former orders; In the reading of an order for the division of Marble Head Neck; A motion was brought in by Cp. Endicot in behalfe of m[r] John Humphries for some Land beyond ffforest River, moved by spetiall argumen [ts] one whereof was, *Least yt should hinder the building of a Colledge*, w[ch] would be manie [mens] losse, It was agreed vpon this motion that six men should be nominated by the towne to view these Lands and to consider of the premisses, and for that end was named

m[r] THOMAS SCRUGS
m[r] ROGER CONANT
JOHN WOODBERY
Cp. TRASKE
m[r] TOWNSEN BISHOP
PETER PALFREY

That these six or any foure of them are deputed for this business to speake or—— Item yt was ordered that whereas m[r] Scrugs had a farme of three hundred acres beyond forest River, And that Cp. Traske had one of tooe hundr

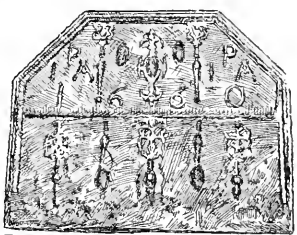
of the leading institution of learning in the land, President Eliot of Harvard.

President Eliot, after a few complimentary phrases and a word of pleasantry about the choice of names and of locations as between Scruggs and Harvard, spoke substantially as follows:



Bowditch Desk and Quadrant.

It is fitting that a representative of Harvard University should take part in this celebration. As I listened to the commemorative address of the President of the Institute I thought of the many Salem families to which Harvard University and the Essex Institute had been alike indebted. I recalled the names of Holyoke, Bowditch, Story, Wheatland, Saltonstall, Pickering, Endicott and White, all of which are great Harvard names as well as great Essex names. In successive generations Harvard and Salem have both incurred a great debt to these eminent and durable families.



The Pickering Fire-back.

The working of the Essex Institute is extraordinarily varied. By its collections it illustrates many widely

[ed] acres beyond Basse River, The— Cp. Traske frely relinquishing his farme of tooe hundred acres, It was granted vnto m^{r} Thomas Scrugs, and he there vpon frely relinquished his farme of three hundred acres that soe m^{r} Humphryes might the better be accomodated.

See Records of Massachusetts, Vol. I, *passim*.

Felt's Annals of Salem, Vol. I, pp. 172, 427; Vol. II, pp. 564, 575; 1st edition, pp. 98, 527.

Savage's New England Genealogical Dictionary, Vol. IV, p. 42.

Upham's Witchcraft, Vol. I, pp. 64–6, 130.

Salem Town Records; see Historical Collections, Vol. IX, *passim*.

different fields of knowledge. Thus its collections in natural history, already interesting and important, are likely to be of more and more service as time goes on. Our fathers did not expect botany, zoölogy and geology to be cultivated in the elementary schools; but we have come to believe that these subjects should be diligently taught in all schools, and that local collections should be generously provided to illustrate these sciences. We believe that every primary school teacher and grammar school teacher in Salem should have a good knowledge of the natural history of the place, and should cultivate in her pupils a taste for exploring the flora and fauna of the county. Every year will increase the importance of the natural history collections of the Institute.

The Essex Institute has also a unique collection to illustrate the adventurous life of Salem men when commerce with the far East was a large element in Salem life. Here is a unique collection of records of voyages, ship's logs, and ship-letters covering one of the most interesting and important periods in the commercial history of our country. These are records of enterprise, adventure and daring exploration; they are records of the struggles of Salem men with the dangers of unknown seas and coasts, struggles which furnished to thousands of Essex sailors an heroic discipline. It is in such struggles that those constructive moral and physical qualities are developed which occasionally get opportunity of destructive expression in war. The qualities of endurance, alertness, and boldness which give victory during the destructions of war have been developed in the struggle with adverse nature during long periods of peace.

You citizens of Salem have the privilege of living in one of the most historic towns of America. Ten years ago I had the privilege of visiting, early in the delightful month of May, the city of Athens. I soon came to the

conclusion that, apart from the Acropolis and its immediate surroundings, the actual city of Athens was decidedly a less interesting place than this city of Salem. It is also a much less comfortable and enjoyable place than Salem.

But, good as the work of the Essex Institute has been, you all long to make it better; and I, therefore, venture to describe briefly the best means of enlarging the scope and influence of the Institute, and of making valuable to other parts of the country its precious collections. To give the highest value to such collections as the Institute maintains, it is necessary to have learned and skilful men constantly engaged in re-arranging and enlarging the collections, and making known their contents by descriptive labels and published memoirs. The most instructive arrangement and the most scientific development can be secured only by the continuous service of experts; and the Essex Institute needs two such expert curators whose whole time can be devoted to its service. To support them an endowment of $200,000 would be needed. There should also be a fund of at least $50,000 for publication purposes in order that the collections might be made useful, not only to Salem and Essex County, but to the whole country. Such publications would carry the name of the Essex Institute far and wide. I sincerely hope that the suggestion of these endowments on this occasion may bear fruit.

Such an Institute as this helps to create and foster love of home, of city, and of country. Out of a local affection grows the wider love of country, and out of the early interest in such subjects as those to which the Essex Institute is devoted, habitually fostered in the children of a city like Salem, grows in after life a broad and fruitful interest in intellectual pursuits. These loves and interests are what make life worth living.

President Rantoul then said: Our senior Senator writes as follows: —

MY DEAR SIR: —

I am sorry that my public engagements here will deprive me of the pleasure of accepting your invitation to attend the fiftieth anniversary of the Essex Institute. I should like to see the members of that famous society and to hear what they will tell of its founders and the learned men who have given it such great distinction, of Dr. Wheatland, and of Mr. Hunt, the modest and faithful officer you have so lately lost. But I suppose it will be impossible.

I am, with high regard, faithfully yours,

GEO. F. HOAR.

And our junior Senator, an Essex County man, sends his regrets in these words:

U. S. SENATE, FEB. 11, 1898.

MY DEAR SIR: —

I am much obliged by your kind invitation to be present at the fiftieth anniversary of the founding of the Essex Institute, and regret that it will not be possible for me to be present.

Very truly yours,

H. C. LODGE.

HENRY M. BROOKS, ESQ.,
Secretary.

The President remarked that it was not every day that we had a son of Salem at the head of one of the three great professions of the country, but it was so to-day, and he shared their regret in being obliged to read a letter from Mr. Choate, when they had hoped to hear from him.

Mr. Choate writes:

50 West Forty-seventh Street,
FEB. 28, 1898.

MY DEAR RANTOUL: —

I regret very much that I cannot avail myself of your kind invitation to be present and take part in the celebration of the jubilee of the Essex Institute on the 2nd of March. It turns

out just as I expected that an inevitable engagement in the Supreme Court at Washington on that day will keep me away.

I well remember the foundation of the Essex Institute and its feeble beginnings, and have watched with great pride and interest its sure and steady progress to its present high position of influence for good.

It is not only the pride of Salem and of Essex County, but is honored wherever its work is known. Its publications have been of very great value, and I have particularly enjoyed its historical researches which I hope may be continued with renewed vigor, for I am satisfied that much remains yet unpublished of local history which would be of great general interest.

Wishing you a most successful celebration, and prophesying a great future for the Institute, I am

Most truly yours,

JOSEPH H. CHOATE.

President Rantoul alluded to the Peabody Academy of Science as "our neighbor across the way," and said that the two societies lived on such terms of unbroken amity, of undisturbed harmony and mutual helpfulness, as almost to presage the millennial era. He asked Acting President S. Endicott Peabody, who sat behind him, to respond for the Academy, but that gentleman excused himself, and Professor Edward S. Morse, the Curator of the Museum, was presented.

Professor Morse said:

The Peabody Academy of Science, as custodian of the natural history collections of the Essex Institute, has endeavored to present to the public a well-arranged, well-labelled and well-lighted museum. The Institution founded by George Peabody of London was specially organized to diffuse knowledge not only in Essex County but, as Mr. Peabody expressed it in his letter of trust, "our common country as well." It is believed that a public museum, open every day in the week and free to

all, furnishes intellectual pleasure and rational amusement in a most graphic way.

Our museum is unique in that it combines not only a collection of the animals and plants, rocks and minerals and prehistoric relics of Essex County, but an epitome-collection of the animals of the world. These are exhibited in one great hall. In another hall are displayed the weapons, utensils and handiwork of the nations of the world. Among these are many objects of great rarity. Since the opening of the museum in 1868 over one million two hundred and fifty thousand visitors have passed through its halls. Salem does not realize the importance of its ethnological collections, which stand third in rank in the United States at the present time.

The President then said:

Thirteen towns and cities of the County, — a round dozen, — are now supporting local historical and scientific societies of their own, and almost all of them recognize their obligations to the Essex Institute as the parent society of them all. It is fitting that these kindred bodies should be heard from here, and I call upon the President of the Danvers Historical Society, one of the most vigorous of the brood, to speak for the affiliated bodies of the County.

Dr. Putnam said:

Mr. President, Ladies and Gentlemen:

Surely no one can catch sight of the stately and spacious buildings of the Essex Institute so close at hand and think of the vast and priceless collections which they hold without a fresh feeling of gratitude and honor to the illustrious Dr. Wheatland for what he did to make the whole the one crowning glory of the Salem of to-day; nor, let me add, without rejoicing that, under the direction of

his present very able, earnest and accomplished successor, Mr. Rantoul, the work still goes on with unabated vigor, and can hardly fail of the largest and most beneficent results.

I have been asked to say a word for the numerous other historical societies, which have been established from time to time in as many of the towns of Essex County. Could I be permitted to speak in their behalf, it were but just to say how much they feel indebted to the Institute and its honored presidents for the service which they have also rendered in this more extended scene by awakening or intensifying in us all a love and zeal for such pursuits as have engaged you here for these fifty years. Stimulated by your noble example and realizing that they had, immediately around them, promising fields which they might glean for their own special advantage and for the public good, your neighbors have organized these local societies here and there and are glad to believe that they are thus enlarging the work and widening the influence of the mother of them all.

These organizations, generally, have each their own rooms or head-quarters, and have courses of interesting and instructive lectures. They celebrate historic events. They erect monuments in honor of departed heroes and benefactors. They seek and collect, from far and near, for safe keeping and profitable use, such memorials of the past or objects of nature, as shall be suitable for such institutions and shall best illustrate the manners and customs, the arts and industries, the thought and life, of generations gone, and the facts and lessons of science and of the world around us in our own time; books and pamphlets, diaries and journals, maps and charts, manuscripts and documents, autographs and letters; coins, scrip, seals, medals, badges and banners; military weapons and insignia; paintings, engravings, etchings,

silhouettes and photographs; old-time articles of wear and furniture; relics and curios of great variety; geological, mineralogical, botanical and natural history specimens, and whatever else may properly serve the end in view.

And it were strange if some of these humbler local societies were not able to gather, from the widely scattered sons and daughters of their respective towns, many a memento or prize of particular value to themselves, such as the larger, central institution, in its vaster work, might possibly miss. Treasures come back to us that might else be lost. But whether they come from near or from afar, all do good by kindling a new interest in the higher things; and it is especially gratifying and significant that even the school children of the vicinity often come to see and inquire, so that what they have learned in their regular daily studies may be made more vivid to their minds by the object lessons they find. In numberless ways the study of history is quickened and fostered, tastes are elevated and ennobled, character is developed, and all are somehow made to feel that man does not live by bread alone, and that he does not bear the root, but the root him.

We congratulate the Essex Institute on the splendid work it has done. There is no end to the good it may yet do,— and with it, I would fain hope, the sister societies of which I have spoken,— in restoring, as far as may be, the picture of the New England of our fathers, and, in adding, still, to the great sum of human knowledge. They are all ornaments and blessings to the towns or cities where they exist, promoting their intellectual, moral, social and even business prosperity, by their presence, activities and influence. You have heard of the excellent and venerable Presbyterian clergyman, who, after a very long pastorate, still held on to his thinning and wasting congregation, until the price of real estate itself aroun d

him began perceptibly to decline. The good deacons and elders were at last prompted to action, explained to their beloved minister the gloomy situation and could but suggest to him the inevitable remedy. Said the dear old man, with becoming gravity and evident sincerity, "I came to you in the days of your prosperity, and I haven't it in my heart to leave you in the time of your adversity." Mr. Rantoul is not likely to be surprised with a visitation like that, but will see to it well that the Institute shall in more ways than one minister to the weal of the "City of Peace" and the towns about it, and that the half-century to come shall be still more glorious than that which we commemorate to-day.

The President, in presenting the British Consul General, Sir Dominic E. Colnaghi, said:

Whatever differences of opinion or of feeling may spring up, from time to time, between us and any given administration of the British Government, and they are wide and frequent, the ties that bind the British and American peoples can never be broken. We are honored to-day with the presence of Her Britannic Majesty's representative at Boston and I take great pleasure in presenting to you the British Consul General, Sir Dominic Colnaghi.

The British Consul said:

Mr. President, Ladies and Gentlemen: —

It has been a great pleasure to me to come here to-day, and I would take this opportunity of thanking the President and members of the Essex Institute for their courteous invitation and for the hospitality so kindly extended to me.

I will not deny that I feel somewhat abashed in addressing, even with a few words, so large and distinguished an

audience. Still, though I am personally unknown to nearly all of you, and to most, indeed, the mere shadow of a name, I cannot, as an Englishman, feel that I am a stranger in New England.

With some new traits, brought about by change of climate, of association and of political conditions, I find here that steady energy of character and devotion to duty, — that love for home, for country and for freedom, — that dignified calm in moments of acute political crisis, — qualities which, I flatter myself, your ancestors brought as their heritage from the old country, and which, I trust, still flourish in their original home.

We are met together to celebrate the fiftieth anniversary of the foundation of the Essex Institute, of whose good work Salem is justly proud, but with regard to which I can add nothing to what has been so eloquently said by previous speakers; I would only remark that here again I find America vying with Great Britain in all that relates to the advancement of science, of education, of literature and art — of all, in short, that tends to promote civilization in general and the welfare of our people in particular.

And, it is gratifying that this movement is so strong in Salem, which not only claims the interest of Englishmen as the birthplace of Hawthorne, of Prescott and of other distinguished men and women, but as the mother city of Massachusetts with all her historic associations.

In England we have a County, not the only one, in which the lasses are noted for their beauty and are called the Lancashire witches. I had read, indeed, of Salem witchcraft, but never came under its influence till to-day, when the presence of her fair citizens, while enhancing greatly the charm of the celebration, has contributed to increase the confusion which a slow-tongued Englishman has felt in venturing to address you.

The Rev. William Orne White of Brookline was next introduced as one who was here with a triple claim to be heard, for he was not only the son of Judge Daniel Appleton White, who was long the first President of the Essex Institute and its greatest early promoter, but also the son of that Judge Daniel Appleton White who was, for as many years, the last President of the Essex Historical Society whose successor we are, and the first President of the Salem Lyceum, whose successor we are to be.

Mr. White replied:

Mr. President, Ladies and Gentlemen:

The mention of that name compels me, first, to say that for me to lose such a friend and inspirer has been impossible. Not even death can rob us of those that every passing year does but bury deeper and deeper in the heart.

When I recur to my earliest recollections of my father, I see bookshelves to left of him, bookshelves to right of him, and bookshelves above him, and yet at evening I find him down in the parlor eagerly cutting the leaves of some new volume belonging to the Athenæum.

Well might such a man love the Essex Institute, as he did, indeed, the whole county of Essex. Before the railroad days, it was a joy of my childhood to sit by him in the chaise which took him to Lynn or Andover or Haverhill or Newburyport or Gloucester or Ipswich, in his capacity of Judge of Probate.

Mr. President: it is always a pleasure to read the story of your delightful field meetings. One such occasion I recall thirty-two years ago next summer, when, in the old church at Manchester, Congressman Butler and Chief Justice Chase enchained the attention of their listeners, — the one speaking on aërial navigation and a projected phonograph with forty strings; the other discoursing

about the then recent successful laying of the Atlantic telegraph; and it was interesting to find that both of them, from research and professional experience, were able to add much to the zest of the occasion.[6]

As you may all readily imagine, countless faces of the venerable and the beloved are flitting across my mind to-day. There is one scene that so persistently repeats itself, that I must try to make you stand by the side of the boy of seven, as it rivets itself upon his mind.

It is the procession of friends, who, two by two, are following seventy years ago next August, the honored centenarian Dr. Edward Augustus Holyoke, from his home, about midway between the Market and Central street to the hotel on the opposite side of Essex street, where those professional companions and others, from Boston and elsewhere, will sit down with their revered guest at a banquet in honor of his one hundredth birthday. It is over a gulf of one hundred and seventy years that we now glance backward to Dr. Holyoke's birth, a date preceding by more than three years the birth of Washington.[7]

My friends: as I listened to your President to-day, I thought, "how interesting it is to note, as they move forward, and all keep in line, the onward march of successive generations." The grandfather of your President, Robert by name, I vividly recall; a man of impressive presence and of marked influence. Then came the son, that second Robert, who counted not the cost, but threw himself boldly, as a statesman, into the intellectual conflict which preceded, by long years, that national triumph which he was not spared to see. And now, here is the grandson keeping step in his turn, as he gives his mind to

[6] See Proceedings, Vol. v, pp. 60-61.
[7] See Historical Collections, Vol. XXXII, pp. 117-122.

the public welfare; and there are others of the race, ready, we doubt not, to take up the line of march in a kindred spirit.

Among the figures of the past that continue to rise before me, I discern Jones Very, the modest, retiring poet, who, as Greek tutor at Cambridge, in his walks with one and another of us Freshmen, strengthened our best aspirations, and drew, in later life, from such a man as the late William Goodwin Russell, the leading advocate in Boston, a heartfelt tribute to the value of a close personal intercourse with such a man as Jones Very at the forming period of one's life.


Holyoke Chair

Time and again have I heard my father express, in glowing terms, his sense of the inestimable value to the Institute of the services of the late Dr. Henry Wheatland.

And now let us hear Reverend Charles T. Brooks (whose scholarly face always retained the sweet ingenuousness of childhood).

I speak for himself in the closing lines of the Ode for the Dedication of Plummer Hall, which (after alluding to Salem as the "City of Peace") continues:

> "God of Peace, the city keep!
> Guarded well by watchmen three!
> Sentinels that never sleep,
> Learning, Faith, and Liberty.

The President here alluded to the ancient chair that he was using, as associated with Dr. Holyoke. It was an Elizabethan arm chair presented to the Historical Society at its initial meeting in 1821, and then two centuries old,

and used by Dr. Holyoke in presiding. It was brought to Ipswich in 1634. There was also on the stage a finely inlaid table brought from Japan in 1799, in the ship "Franklin," by Captain Devereux of Salem, who commanded her,— the first American vessel that traded with Japan.[8]

The President then presented the Hon. Stephen Salisbury of Worcester as the President of a greater society than ours, pursuing kindred aims, but which had a continent for its field instead of a county.

President Salisbury of the American Antiquarian Society spoke as follows :—

Mr. President :

I bring cordial greetings and felicitations from the American Antiquarian Society to its younger sister. The Society that I represent has its library of 100,000 volumes, its collections of paintings, statuary, manuscripts, coins, relics and Indian implements, in its Halls at Worcester, and was founded by Isaiah Thomas in 1812, thirty-six years before your Society, and yet we have every reason to be grateful to Salem, for we possess the major part of the Dr. William Bentley Library.[9] For this we are indebted to his friendship for Dr. Thomas, and by his bequest we have become possessed of Dr. Bentley's German library, pictures, manuscripts and books relating to

[8] For an account of the Holyoke Chair see Bulletin, Vol. IV, pp. 25–6 and 133–4. Also Historical Collections, Vol. XXXII, p. 120, and Essex Register for Sept. 22, 1828, 1st page, 2nd column.

[9] See Historical Collections, Vol. XXXII, pp. 101–2.

America. The books are now collected in an alcove, which bears Dr. Bentley's name. We have the publications of the Essex Institute upon our shelves, another cause of gratitude to Salem.

Our objects are in many respects similar to yours in the collection and preservation of early Americana, of which we have a large store, and in the promotion of historical and literary enquiry, and in the investigation of archæological questions relating especially to this Continent. Our publications consist of the proceedings of stated meetings and the editing of manuscripts of which we are the custodians.

Among our local societies in Worcester we have two to which I belong and both of them have received much benefit from studying the system you have pursued and I believe have copied some of your methods. The Worcester Society of Antiquity has a building erected for its purposes, containing a hall for its meetings seating three hundred persons, a library of ten thousand volumes, and a museum of local historical curiosities and paintings. The building is open to the public every week day afternoon, and stated meetings are held every month at which essays are read and courses of lectures are given each winter by eminent men. Once or twice each year the Society visits localities of historic interest. The proceedings of the Society are issued in print and have now reached their fourteenth volume.

The Worcester Natural History Society is another organization which owns the building that it occupies and has classes in the different departments of Natural Science. In former years it has held field-meetings following largely the plan you have so successfully inaugurated.

Not alone are societies benefited by the habit of inves-

tigation, which they encourage by bringing students in contact with objects to be studied, thus creating the object-lesson system, but our higher institutions of learning are now adopting that method in teaching how to pursue special investigations, which perhaps were first suggested by laboratory work in Institutes like yours.

After seeing the great value of the library and collections you possess, which show the richness of the field from which it has been drawn, that in early colonial times was hardly second to any part of the seaboard of Massachusetts and left the interior of the state entirely behind, it cannot be doubted that the same protecting care of interested co-laborers that has provided these collections will secure ample quarters for future development.

The President then presented Rev. George Batchelor of the Christian Register, as once of Salem, and the writer of one of the best chapters of condensed Salem history that has ever been printed.

Response of Rev. George Batchelor.

Mr. President, Ladies and Gentlemen:

I recognize the fact that not one-half of the gentlemen upon this platform have yet spoken, and I know they are all prepared to say something in honor of the Essex Institute. There is only time, therefore, for me to bring you my greeting and congratulation.

In regard to that historical sketch to which you have so kindly referred, I said to a friend this morning that I considered it my foremost literary achievement. It gave me great pleasure to be asked by the sons of Salem to contribute such an important chapter to the history of this ancient town. I regarded it as an act giving me the freedom of the city and making me an adopted son of Salem. You do not allow strangers to deal with your

antiquities and handle your precious heirlooms. When my sketch was completed I sent it to the antiquarians of Salem for criticism, to Dr. Wheatland, Messrs. Waters, Rantoul and Upham. I expected to have it returned to me in tatters. I was delighted to find it in such condition that it could still be printed. Mr. Upham expressed his surprise that I had been able to get so thoroughly into the atmosphere of Salem. My reply was, that one who had lived sixteen years in Salem, and loved it as I did, must carry with him something of the atmosphere of the place. As a reward of merit Mr. Upham presented to me for my sketch one of his discoveries concerning the controversy between the cottagers and commoners of Old Salem. Probably he and I were the only two persons in the United States who understood that question.

I most heartily second the appeal of your President and the President of the University for a larger endowment and a full display of the historical and literary treasures in the Essex Institute. I do this partly for a personal reason, namely, to vindicate my reputation as a truth teller. I have travelled in all parts of the union; I have visited state universities, laboratories and museums, and whenever, in answer to the boasting of some institution which had nothing to show in comparison with your treasures, I have begun to speak of these things in Salem, a look of incredulity has stolen over the faces of my hearers, and a polite but increasing reserve indicated the belief that I was exaggerating. The presence of our English friend, Sir Dominic Conaghi, suggests a similar experience by way of illustration. I was travelling in Switzerland with an Englishman who dilated upon the habit of exaggeration common to Americans. I asked for a sample. "Oh!" he said, "they tell big stories about everything; the size of their farms, for instance." "Well,"

I replied, "there are some big farms in the United States. For instance, on the Pacific coast there are wheat farms that it would take a span of horses a week to draw a furrow around." That is a simple fact, but the Englishman, greatly amused, threw himself back, saying "That is the biggest lie yet." There is another reason. Within ten years half a million visitors have registered at the Peabody Academy of Science. In the century to come that number will be greatly increased. All over the country new attention is being paid to the antiquities, to the old families, the old names, the old relics, the old historic spots, and whatever the newspapers may say to the contrary, it is true that there are in all parts of the country Americans who look with love and reverence towards the homes of their ancestors, and what they consider the shrines of the national life.

This celebration is unique. In no other city of this size in the country could such an assemblage be gathered with such a purpose, with such substantial reasons for congratulation. But, Mr. President, you see I am tempted to trespass beyond my limit. Were I to make an oration instead of a speech, I should say that, in the forty years before the building of our railroads, Salem was foremost among the towns and cities of America in four different ways (not to claim too much). She led in war, as the records of her naval experience attest. She led in commerce, as all the world knows. She led also in literature and in religion. Just one sample fact of the scores which might be cited. Salem represented the two great divisions of Congregationalism to such an extent that she may fairly be credited with leadership. The Theological School at Andover came out of Salem, as did also the Plummer professorship of morals in Harvard University. I have long wished that I might devote myself to the

history of Salem, but I have been a busy man and many other things have claimed my attention and made impossible what would be for me a task of the most agreeable description.

The President said:

You will all agree with me that this commemoration would be incomplete without a word of respectful tribute to the memory of Henry Wheatland, and I know of no one better fitted, in his training and career, to pronounce that word, than the President of the American Association for the Advancement of Science, a Salem boy, an early associate of the Institute, grown up under the tutelage of Doctor Wheatland himself. May I ask Professor Putnam to say a word in memory of Doctor Wheatland?

Professor Frederick Ward Putnam spoke in substance as follows:

He said he had attended the twenty-fifth anniversary of the Essex Institute and had then promised himself that, if he lived, he would attend the fiftieth.

He had been early on intimate terms with Doctor Wheatland, who had for some reason taken a very special and active interest in his development. He became when a mere boy a member of the Institute. It was then but seven or eight years old. Under its influence and guidance he developed those tastes for natural science and for critical observation which had shaped his life.

He could not fail to pay his tribute, humble though it be, to Doctor Wheatland. The dear old Doctor, ever busy for the good of others, had befriended and encouraged him in his special pursuit — the study of the bird, fish and reptile life of Essex County — and it should be especially known and remembered that Doctor Wheatland

was the first person in America to dredge the sea and study the sea-fauna of this region. Professor Putnam described the rude appliances with which this result was accomplished.

He said that the importance of such an institution as Doctor Wheatland had created, to the country at large, and especially to young naturalists, could not be overstated. Its plans and methods were widely copied, and he watched the development of Doctor Wheatland's schemes with as great enthusiasm, now that he was no longer actively engaged in them, as he did in earlier years when his own success in life almost depended upon them.

He gave several instances of the singular and characteristic methods adopted by Doctor Wheatland, to procure the funds required. Once the speaker was publishing a work describing every species of bird in Essex County. When the last bird was ready to be mounted for description, the money was lacking, and Professor Putnam complained to the Doctor that the specimen would perish. Ten dollars was the sum required at that crisis, and there was no money for that or any other purpose. Doctor Wheatland, after a moment's thought, said, "Fred, we must secure more members, and stuff the specimen out of their admittance fees." And out into the street he went and secured enough members to meet the deficit.

It seems impossible, said the speaker, to be present at a meeting of the Institute and not to believe that Doctor Wheatland is with us still. And Mr. Hunt also, who had in so great a measure taken up the self-imposed task of the Doctor and carried it on until he too has left to others the continuation of the work. I should indeed be recreant, said Professor Putnam, if I were present at the fiftieth anniversary of the Institute and failed to respond to the call for a word of tribute to its noble dead.

Three other gentlemen were present who had accepted invitations to "contribute a few words to the speaking of the afternoon," and it was an unpleasant necessity that deprived the audience of an opportunity to hear them.

But the ladies had spread tables on each floor of Plummer Hall and were awaiting their guests since half-past four, and as it was considerably beyond that hour, the large assembly adjourned to the next building, where a social cup of tea was shared by the friends of the Institute, amidst general congratulations upon the hopeful outlook with which the Society enters upon its second fifty years. The two floors of Plummer Hall were brilliantly illuminated, for the first time, with powerful arc lights, and the noble upper hall was festooned with greenery also. These rooms, when filled with guests and set off with the elegantly appointed tables and tastefully varied costumes of the ladies, made a charming picture.

SOME LETTERS RECEIVED.

Mr. ROBERT D. ANDREWS begs to thank the Secretary of the Essex Institute for the courtesy of his invitation to be present at its celebration on March 2d, and sincerely regrets his inability to be present at that time.

BOSTON, FEB. 9, 1898.

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16 Fairfield Street.

BOSTON.

Mr. JOHN T. MORSE, Jr., accepts with pleasure the polite invitation to be present at the celebration of the Essex Institute on March 2, 1898.

FEB. 9, 1898.

DEAR SIR:—

It was very kind of the Essex Institute to invite me to their celebration on March 2d. I regret that I am quite unable to avail of the courtesy.

Yours truly,
HENRY LEE.

BROOKLINE,
FEB. 9, 1898. .

MASSACHUSETTS HISTORICAL SOCIETY,
FEB. 10, 1898.

DEAR SIR:—

I wish to acknowledge the receipt of your kind invitation to attend the celebration of the Essex Institute at Salem, on March 2, but other engagements will prevent my acceptance. Thanking you for your courtesy in the matter, I am

Very truly yours,
SAMUEL A. GREEN.

The LIBRARIAN of the Boston Athenæum thanks the Essex Institute for its invitation and hopes to be present at the celebration of the fiftieth anniversary of its founding.

BOSTON ATHENÆUM,
FEB. 10, 1898.

PHILLIPS ACADEMY,
ANDOVER, MASS.,
FEB. 10, 1898.

HENRY M. BROOKS, SECRETARY,
ESSEX INSTITUTE, SALEM, MASS.

DEAR SIR:—

I have the polite invitation for your celebration, 2d March, and shall hope to be present, with Prof. Wm. B. Graves, representing the Phillips Academy at Andover, and its library.

Very respectfully,
CECIL F. P. BANCROFT,
Principal

BENJ. C. CLARK,
55 Kilby Street,
P. O. Box 2,682. BOSTON, FEB. 10, 1898.

MR. HENRY M. BROOKS,
SECRETARY OF THE ESSEX INSTITUTE, SALEM.

MY DEAR SIR: —

It gives me great pleasure to accept the courteous invitation of the Essex Institute for March 2d, personally, as also that addressed to the President of the Bostonian Society for the same occasion.

Mr. Curtis Guild, the President of the Bostonian Society is, I regret to say, confined at home by an illness which gives no hope that he will be able to attend your meeting, and I am endeavoring to perform his duties by the partiality of the Board of Directors.

Sincerely yours,
BENJAMIN C. CLARK.

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247 Commonwealth Avenue.

MR. URIEL H. CROCKER thanks the Essex Institute for its invitation to be present at the celebration of its fiftieth anniversary but regrets exceedingly that he shall be unable to attend on that occasion.

FEB. 10, 1898.

CHARLES FREDERICK SMITH'S thanks to the Essex Institute for its invitation to the celebration of the fiftieth anniversary of its founding.

On account of illness, he will be compelled reluctantly to decline the invitation.

BOSTON, FEB. 10, 1898.

NEWBURY, FEB. 10, 1898.

HENRY M. BROOKS, SECRETARY, ESSEX INSTITUTE.

DEAR SIR: —

Very sincere thanks for your kind invitation for March 2d. We, Mrs. L. and myself (presuming she is included), accept

with pleasure, and doubt not that the occasion will be to us both a pleasure and a profit.

Very respectfully,

WILLIAM LITTLE,

President of the Old Newbury Historical Society.

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28 East 36th Street.

NEW YORK.

FEB'Y 10, 1898.

Mr. D. F. APPLETON begs to acknowledge the honor of an invitation to join in the celebration of the fiftieth anniversary of the founding of the Essex Institute, which he very much regrets that he is unable to accept.

TO HENRY M. BROOKS, ESQ.,
Secretary.

UNION CLUB.

BOSTON.

FEB'Y 10, 1898.

DEAR SIR:—

I regret that my immediate departure for Europe will prevent my acceptance of the kind invitation to attend the fiftieth anniversary of the founding of the Essex Institute on March 2d.

I am very truly yours,

HENRY K. OLIVER, M.D.

FLORENCE, FEB. 10, 1898.

HON. ROBERT S. RANTOUL,
PRESIDENT OF THE ESSEX INSTITUTE.

DEAR SIR:—

I am very glad to hear that the Essex Institute is to celebrate the fiftieth anniversary of its organization.

We natives of Salem of course are deeply interested in the history of the old town and its sons and daughters should help to make its coming celebration an occasion of the greatest success.

I am in the habit of speaking of our County to strangers as the Mother of Counties. We would not, in the least, detract from the high regard in which Suffolk, Plymouth and Middlesex Counties are

looked upon, but it seems to me that old Essex, when we consider its early religious, commercial, manufacturing, agricultural and social development, and also bear in mind that it was the birthplace of Rufus Putnam, Nathan Dane and Manasseh Cutler, the pioneers in the settlement of the great West, is well deserving of the title of the Mother of Counties.

All the towns of the County should help each other in treasuring, most carefully, everything related to their rich history of two centuries and a half.

I was greatly grieved to hear of the sudden death of my friend Mr. Hunt, who, next to Doctor Wheatland, it seems to me has done for the Essex Institute more, in a disinterested way, than any other person. Let us try to carry out some of the plans which we know he had formulated for enlarging and extending its usefulness.

Many of the members of the Institute know that we are greatly in need of more room to display our valuable collections, and it is to be hoped we may be able to raise a sufficient fund to enable us to begin soon to extend the building in the rear by erecting fireproof annexes.

I feel quite sure that many valuable treasures would be given to the Institute,— valuable and of great interest not only to our own people but to the many strangers constantly flocking to the rooms to acquaint themselves with the many objects of unique historic interest,— if the donors could feel sure that these things would be constantly on exhibition and be entirely safe from loss by fire. Sooner or later I expect to give my valuable collection of coins to the society and these, with the considerable addition of our own accumulations, would make, at the start, quite a respectable display in what might be called the coin room. Then we need a room devoted entirely to old family portraits, and Salem is very rich in this direction. Another room might be set apart to the exhibit of rare historical documents and autographs. Another to old silver, jewelry, miniatures, seals, rings, etc. Still another to old glass and china which has graced, in the olden time, many of the houses of the colonial and commercial periods. I think we should soon fill our newly built fire-proof extension with the considerable collections which we have already, stored away and out of sight for want of room, increased by the treasures which are sure to come from many people, as soon as the beneficiaries can be shown that they shall have a safe and fitting habitation.

Let a committee be appointed to prepare a circular, to be sent out not only to all of the members but to many others, including natives of the town scattered all over the country, who are rich in this world's goods and would, I feel sure, in many cases contribute generously to a fund to be devoted to enlarging our society's building.

Sincerely yours,

FRANCIS H. LEE.

BOSTON, MASS., FEB. 10, 1898.

DEAR SIR:—

I thank you for the compliment — but it will be impossible for me to attend at the Essex Institute Anniversary.

Resp. yrs.,

WM. I. BOWDITCH.

GLOUCESTER, MASS., FEB. 10, 1898.

TO THE SEC'RY ESSEX INST.

SIR:—

Your kind invitation to attend the fiftieth anniversary rec'd. I shall try to do myself the honor of being present on that occasion, although there is a possibility of my professional duties preventing the fulfilment of my desires.

Yours very respt'y,

T. CONANT,

Pres. Cape Ann Sci. & Lit. Ass'n.

HENRY M. BROOKS, ESQ.,
Sec'y Essex Inst.

Dr. W. Z. RIPLEY regrets very much his inability to attend the fiftieth anniversary of the Essex Institute. An engagement in New York will preclude his acceptance of the kind hospitality extended.

BOSTON, FEB. 11, 1898.

HOUSE OF REPRESENTATIVES, U. S.
WASHINGTON, D. C., FEB. 11, 1898.

MY DEAR SIR:—

May I be permitted informally to reply to your formal invitation to attend the fiftieth anniversary of the founding of the Essex Institute? I wish very much that I could be present, but my duties here will prevent it.

Yours very truly,

W. H. MOODY.

CAMBRIDGE, FEB. 11, 1898.

MY DEAR SIR: —

I accept the very kind invitation of the Essex Institute to be present at their fiftieth anniversary with great pleasure.

Very truly,

JOHN TROWBRIDGE.

HENRY M. BROOKS, ESQ.,
Secretary.

AMES BUILDING.

BOSTON, MASS., FEB. 11, 1898.

HENRY M. BROOKS, ESQ., SECRETARY,
SALEM, MASS.

DEAR SIR: —

I thank you for your kind invitation to attend the fiftieth anniversary of the Essex Institute, but I am afraid that it will be impossible for me to be present. I am

Very truly yours,

T. JEFFERSON COOLIDGE.

BROOKLINE, MASS.,
FEB. 11, 1898.

MY DEAR MR. BROOKS: —

A septuagenarian cannot count very long ahead upon health and strength for any hoped-for pleasure at a fixed date. But as you have arranged for the afternoon of March 2d rather than the evening, I can only hope that nothing unforeseen may deprive me of the pleasure, upon the fiftieth anniversary of the Essex Institute, of being present.

Most truly yours,

WILLIAM ORNE WHITE.

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299 Berkeley Street.

MRS. JOHN C. PHILLIPS regrets extremely that she is unable to accept the kind invitation of the Essex Institute for March second.

FEBRUARY ELEVENTH.

WASHINGTON, D. C., FEB. 11, 1898.

Mr. Justice GRAY regrets that official engagements put it out of his power to accept the courteous invitation of the Essex Institute to attend the fiftieth anniversary of its founding on the second of March next.

DEAR SIR: —

I am obliged for the very kind invitation to the fiftieth anniversary of the Essex Institute March 2d, but I have an engagement for that day that will prevent my acceptance.

Yours truly,

ARTHUR T. LYMAN.

FEB'Y 11, 1898.

TUFTS COLLEGE, MASS., FEBY. 11.

DEAR MR. BROOKS: —

I now expect to attend the exercises in celebration of the semi-centennial of the Essex Institute on March 2. Thanking you for the courtesy of the invitation

I am

Yours truly

J. S. KINGSLEY.

DEAR SIR: —

I am in receipt of your kind invitation to be present at the fiftieth anniversary of the founding of the Essex Institute.

It would give me great pleasure to attend but the increasing infirmities of age compel me to decline.

With my best wishes that the second half-century of your society may be as prosperous as the last, I remain,

Yours sincerely,

WILLIAM ENDICOTT.

BEVERLY, FEB'Y 11, 1898.

TUFTS COLLEGE, FEBRUARY 11, 1898.

An engagement to be at Cornell University on the 1st of March will prevent me, very much to my regret, from joining you in the celebra-

tion of the fiftieth anniversary of the Essex Institute. The high character of the work it has done deserves commendation.

Very truly yours,

E. H. CAPEN.

Dr. RICHARD H. DERBY has the honor of accepting the polite invitation of the Essex Institute for March 2d, 1898.

NEW YORK, 9 West 35th St., FEB. 12, 1898.

AMOS P. TAPLEY & CO.

BOSTON, FEB. 12, 1898.

HENRY M. BROOKS, ESQ., SECRETARY.

DEAR SIR: —

Your favor regarding the celebration of the fiftieth anniversary is at hand; will you kindly favor me with everything in the way of tickets or documents to which I am entitled, as I certainly expect to use the same.

Yours truly,

HENRY F. TAPLEY.

FEB. 12, '98.

13 APPIAN WAY
CAMBRIDGE, MASS.

I should be glad to be present on March 2d, at the celebration of the fiftieth anniversary of the Essex Institute which society has done so much for the increase of knowledge and interest in Natural History in this state and done that so well too, but my regular school duties will not allow it.

With many thanks for your polite invitation,

Truly yours,

JOSHUA KENDALL.

To HENRY M. BROOKS,
Sec'y.

MELROSE, MASS.,
FEB. 13, 1898.

DEAR HENRY: —

Many thanks for the card of invitation to the fiftieth anniversary of the good old Institute. Be assured that, unless prevented by some imperative professional duty, I shall attend.

Sincerely yours,
EDWIN C. BOLLES.

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9 Massachusetts Avenue.

MRS. CLEMENT WATERS accepts her invitation to attend the anniversary of the founding of the Essex Institute, on March second, with pleasure, and appreciates the courtesy thus shown her, and is much interested in the occasion.

FEBRUARY 13, 1898.

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK,
PRESIDENT'S ROOM, FEB. 14, 1898.

MY DEAR MR. RANTOUL: —

I wish it were possible for me to attend the semi-centennial of the Essex Institute on the 2nd of next month. Unfortunately, my duties are such as to make it seem improbable that I shall be able to be away from New York at that time.

Thanking you for your cordial tender of hospitality,
I am, with kind regards,
Yours sincerely,
SETH LOW.

HON. ROBERT S. RANTOUL,
ESSEX INSTITUTE,
SALEM, MASS.

The PRESIDENT and LIBRARIAN of Bradford Academy accept with pleasure the kind invitation of the Essex Institute for March second.

With sincerest congratulations to the Institute upon its approaching anniversary,

Very cordially,
HELEN L. CRAM.
BRADFORD ACADEMY (*Librarian*).
FEBRUARY FIFTEENTH.

BOSTON, TREMONT BUILDING.
FEB. 15, 1898.

HENRY M. BROOKS, ESQ.
SECRETARY, ESSEX INSTITUTE.

MY DEAR SIR: —

It gives to Mr. Bingham, the librarian of the Manchester Library, and myself much pleasure to accept the kind invitation of the Essex Institute to be present at its fiftieth anniversary exercises on March second.

With thanks from us both for the courtesy,

Very truly yours,
ROLAND C. LINCOLN,
Chairman of Trustees of Manchester, Mass., Public Library.

FLORENCE, FEB. 15TH, 1898.

HONORABLE R. S. RANTOUL,
PRESIDENT OF THE ESSEX INSTITUTE,
SALEM,
DEAR SIR,

I am glad to know that the Essex Institute is to have a celebration of its 50th year.

Salem is the Mecca of the West. No town has such a varied interest. No county has produced such men. The Past is as needful to man as the Future. The Past refines. We go to Europe to see it. The West comes here. Lying back on its fortunes & its history it reproduces Europe in America.

Its repose, out of the vortex of materialism & recency which devours & sterilizes the country, gives it what Emerson called security of manners & tastes invaluable to a new land. Where all is money let us have some mind & memory & associations. Violently new as is the interior let us show on the seacoast what we do, what we have done with our opportunities. The world comes here, & will for endless time where Hawthorne & the men who made Essex County lived. It is a fortune to the town. It is an education to America.

I am with great respect, your friend,
EDWARD A. SILSBEE.

BOSTON PUBLIC LIBRARY,
LIBRARIAN'S OFFICE, FEB'Y 15, 1898.

Mr. Herbert Putnam, Librarian of the Boston Public Library, begs to congratulate the Essex Institute on the achievement of its fiftieth

anniversary, and regrets that it is impossible for him to be present at the celebration of that occasion.

HENRY M. BROOKS, Esq.,
SECRETARY, ESSEX INSTITUTE,
SALEM, MASS.

SALEM, FEB'Y 15, '98.

DEAR SIR: —

It is with sincere regret that I feel obliged to decline the invitation your courtesy has extended to me to be present at the attractive celebration of the Essex Institute's fiftieth anniversary. It would be a rare treat to me. However I shall try to enjoy it in imagination, and shall hope for the pleasure of seeing a good report of it. May it be an occasion of great pleasure and interest to the members and guests. With the best wishes for the Essex Institute in all its objects, purposes and services, I beg you, Sir, to accept the thanks of

MARGUERITE DALRYMPLE.

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131 VERNON STREET,
NEWTON,
FEB. 15.

MY DEAR MR. BROOKS: —

I have received the "Post Card" in regard to the fiftieth anniversary of the Essex Institute and should be very glad to have you save a ticket for Mrs. Stone and me. We are not now members of the Institute, but we are still much interested in its good work and we look back with much pleasure to the old Salem days and the meetings, excursions and exhibitions in which we took a more or less prominent part.

With kindest remembrances from both of us

I am
Very truly yours,
LINCOLN R. STONE.

HENRY M. BROOKS, ESQ.
SECRETARY ESSEX INSTITUTE.

1113 Sixteenth Street
WASHINGTON, D. C.
FEBRUARY SIXTEENTH.

Mrs. SPOFFORD thanks the Essex Institute for the kind invitation for March second, and regrets that absence from home makes it impossible to accept.

NAHANT, MASS.
FEBRUARY 16, 1898.

H. M. BROOKS, SECRETARY,
THE ESSEX INSTITUTE.

DEAR SIR:—

The Executive and Librarian of the Nahant Public Library regret previous engagements for the afternoon of March 2, 1898. Possibly the Executive may be able to get in to the speaking at 2. 30 but would have to take the 3.30 train (Boston at 3.30) East. Thanking you, we are

Respectfully,
The Nahant Public Library.
FRED A. WILSON,
Executive.

BOTANICAL MUSEUM OF HARVARD UNIVERSITY,
FEB. 17, 1898.

DEAR MR. BROOKS:—

I have delayed answering the kind invitation to the Essex Institute celebration on the 2nd of March, hoping that I might be able to arrange matters here so that I could attend. It now seems unlikely that I can get away from Cambridge on that date, but if I can I shall go. Anyhow I send my best wishes.

Yours faithfully,
GEORGE LINCOLN GOODALE.

SALEM NORMAL SCHOOL,
SALEM, MASSACHUSETTS.

MR. WALTER P. BECKWITH accepts with great pleasure the invitatiou of the Essex Institute to the semi-centennial exercises at Academy Hall and Plummer Hall on the afternoon of March 2d *prox.*
FEBRUARY THE SEVENTEENTH 1898.

HARVARD COLLEGE OBSERVATORY,
CAMBRIDGE, MASS.

MR. EDWARD C. PICKERING regrets very much that he will be unable to be present at the fiftieth anniversary of the Essex Institute, on account of official duties. Mr. Pickering sends his cordial congratulations.

FEBRUARY 18.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY,
18 SOMERSET STREET, BOSTON, FEB. 18, 1898.

MY DEAR SIR: —

I have been in the habit of following with large interest, founded on a conception of mutual aims and objects, whatever your excellent society has done for the preservation of historic record, family history and personal careers, honorable to Essex County. You have accomplished great things; and every historical student owes you a debt of gratitude.

It is with sincere regret, therefore, that I find myself obliged to decline your courteous invitation of the 10th instant, inasmuch as the stated meeting, in March, of this society, occurs on the day selected for your celebration.

With sentiments of respect, I have the honor to remain,

Your ob't servant,
GEORGE A. GORDON,
Recording Secretary.

SALEM, FEB. 18, 1898.

Many thanks for remembering me with a ticket to your entertainment. I regret my inability to attend but I wish you all success.

Yours, etc. etc.
ISAIAH NICHOLS.

MR. HENRY PICKERING thanks the Essex Institute for their kind invitation and requests the favor of a ticket to the commemorative exercises on March 2d.

1 Otis Place,
FEB. 18, 1898. BOSTON.

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40 WALL STREET, NEW YORK, FEB. 19, 1898.

DEAR MR. BROOKS: —

I am afraid I shall be unable to attend the Essex Institute celebration on the 2d of March, and therefore in compliance with the terms of your notice I return the ticket with regret.

I hope the occasion will be successful and add to the already great distinction of that most worthy society.

Very truly yours,
WM. G. CHOATE.

13 Doane Street.
BOSTON,
FEBRUARY 19, 1898.

ESSEX INSTITUTE,
HENRY M. BROOKS, ESQ., SECRETARY,
SALEM, MASS.

DEAR SIR: —

I regret that it is not in my power to accept your polite invitation for March 2d, and with grateful acknowledgments of the honor you do me, I remain,

Most respectfully yours,
JOHN C. PALFREY.

MR. HENRY M. BROOKS:
SECRETARY OF THE ESSEX INSTITUTE.

WASHINGTON, FEB. 19, 1898.

DEAR SIR: —

I much regret that it will not be possible for me to participate in the celebration of the fiftieth anniversary of the foundation of the Essex Institute.

I desire, however, to unite with others in expressing my profound appreciation of the valuable services which the Institute has rendered to science and letters, during the last half century, and to send you my thanks for the honor it has conferred upon me in its invitation to take part in the exercises.

Very respectfully yours,
J. WALTER FEWKES.

5 E. 17TH ST., NEW YORK CITY,
19th FEB'Y, 1898.

MY DEAR SIR: —

I am very sorry that it will be impossible to attend the anniversary meeting of the Essex Institute, owing to my duties here, and I should be very glad if some other officer of the Beverly Historical Society were invited to represent us in my stead.

I remain, with best wishes for the good of the Institute,

Very truly yours,
G. E. WOODBERRY.
President, Beverly Historical Society.

HENRY M. BROOKS, ESQ.

PLYMOUTH,
20 FEBRUARY.

MY DEAR SIR: —

I beg to acknowledge the receipt of the courteous invitation of the Essex Institute to the President of the Pilgrim Society to be present at the fiftieth anniversary of the founding of the Institute on March 2d, 1898. It will give me great pleasure to accept that invitation, and with thanks for the courtesy extended to the Pilgrim Society and myself, I am

Very truly yours,
ARTHUR LORD.

HENRY M. BROOKS, ESQ.,
Secretary.

HOTEL BISCAYNE,
MIAMI, BISCAYNE BAY,
FLORIDA, FEB'Y 20, 1898.

MY DEAR SIR: —

Indeed I would like to be with you on your fiftieth anniversary of the Essex Institute, and to compliment that body on the success that has attended their intelligent and untiring labors in the development of the history of Essex County. No County in this or any other state can parallel the efforts of this Institute in its chosen walks, and in no scant measure should gratitude be felt towards its successive boards of able and faithful officers. Your library will remain a monument, and your historical collections a golden mine for historians, antiquarians and genealogists. One cannot realize by mere verbal phrases the excellence of your collections; one must have gleaned and mined in them for facts, to realize the rich results of your fifty years of labor.

I regret that my physician does not confirm the wish of my heart to join in the feast of reason and flow of soul that will be opened at your meeting, but my sympathies and the coöperation of the heart are with you.

Very truly yours,
CHAS. LEVI WOODBURY.

HON. ROBERT S. RANTOUL,
President Essex Institute,
SALEM, MASS.

DEAR MR. BROOKS: —

Thank you for your invitation to the Essex Institute anniversary celebration. If here, I shall be glad to come.

Yours truly,
H. L. HIGGINSON.

FEB. 20, 1898.

220 Penn'a Ave., Aurora, Ill.,
Monday, Feb. 21, 1898.

Henry M. Brooks, Esq.,
Secretary, Essex Institute,
Salem, Mass.

Dear Sir: —

The card of invitation to be present on March 2d was received on Saturday P. M. 19th. I should like to be there, but it will not be convenient, so I return the card as requested.

Next Monday, 28th inst., will be my birthday, and I shall then be eighty-two years old.

Yours truly,
Edward S. L. Richardson.

John Noble accepts with great pleasure the invitation of the Essex Institute for March 2d.

Boston, Feb. 21, 1898.

Court House,
Pemberton Square.

Bradford Library,
Feb. 22, 1898.

Mr. Henry M. Brooks.

Dear Sir:

I wish to thank you most cordially for your kind invitation to be present at the fiftieth anniversary of the Essex Institute and regret that it is impossible for me to accept it. I know I should enjoy it very much.

Yours respectfully,
Kate E. Johnson,
Librarian.

The President of the Faculty of Andover Theological Seminary regrets that he is unable to accept the invitation of the Essex Institute to be present at the celebration of the fiftieth anniversary, on March the second.

Andover, February the twenty-third.

NEWTON CENTRE,
FEB. 23, 1898.

MR. HENRY M. BROOKS,
Secretary.

DEAR SIR: —

I thank you for your courteous invitation to the half-century commemoration of the Essex Institute. But at this season of the year my regular duties demand what time and strength are at my command. Hoping the occasion will be full of interest to all concerned, I am, dear sir,

Yours very sincerely,
ALVAH HOVEY.

HOMESTEAD,
NO. ANDOVER, MASS.

HENRY M. BROOKS, ESQ.,
SECRETARY OF THE ESSEX INSTITUTE,
SALEM.

DEAR SIR: —

I duly received, through you, the courteous invitation of the Essex Institute to attend the ceremonies of the fiftieth anniversary of its foundation. Circumstances beyond my control compel me to decline the invitation so pleasantly tendered. With thanks and kindest good wishes,

Very sincerely yours,
WM. J. DALE.

MASSACHUSETTS HORTICULTURAL SOCIETY,
NO. 101 TREMONT STREET,
BOSTON, FEB. 23, 1898.

DEAR SIR: —

Your card of invitation to attend the celebration of the fiftieth anniversary of the Essex Institute was duly received, as was also a ticket of admission to Academy Hall and Plummer Hall. The occasion will be of much interest to me, not only as the Secretary of a Society kindred to one of the departments of the Institute, but as even present at the meeting when the Institute was organized. I thank you for the invitation and, health and strength permitting, hope to attend.

Yours truly,
ROBERT MANNING,
Secretary M.H.S.

1 University Place.
NEW YORK,
FEB. 23, 1898.

HENRY M. BROOKS, ESQ., SECRETARY.

MY DEAR SIR: —

I regret extremely that business engagements prevent my accepting the very courteous invitation of the Essex Institute for March 2d, for which I tender hearty thanks.

Yours very truly,
EDWARD KING.

TRINITY COLLEGE,
HARTFORD, CONN., FEB. 24, 1898.

DEAR SIR: —

I regret that my engagements will not permit me to be present at the half-century commemoration of the founding of the Essex Institute on the second of March.

I beg you to accept my thanks for the invitation, as it would have oeen a great pleasure to me to be there on such a memorable occasion.

Faithfully yours,
GEO. WILLIAMSON SMITH.

SECRETARY,
HENRY M. BROOKS,
ESSEX INSTITUTE,
SALEM, MASS.

SPEAKER'S ROOM, STATE HOUSE, BOSTON,
FEB. 24, 1898.

HENRY M. BROOKS, ESQ.,
SECRETARY ESSEX INSTITUTE,
SALEM, MASS.

DEAR SIR: —

I thank you for the invitation to be present at the half-century commemoration of the founding of the Essex Institute at Salem, March 2, 1898, and regret that my prior engagements do not permit of my acceptance.

Congratulating the Institute on its past and with best wishes for its future, I remain,

Yours very truly,
JOHN L. BATES.

THE PHILLIPS EXETER ACADEMY,

EXETER, N. H., FEB. 24, 1898.

HENRY M. BROOKS, SECRETARY,
SALEM, MASS.

DEAR SIR: —

Your kind invitation for the exercises in commemoration of the Essex Institute is just received. I thank you for this attention. If my duties will allow me to leave Exeter on March second, I shall be very glad to be present at the exercises.

Thanking you for the attention shown me, I am

Yours very truly,
HARLAN P. AMEN,
Principal.

DEAR MR. RANTOUL:—

I shall be glad to use the ticket so kindly sent for the fiftieth anniversary of the Essex Institute.

My connection with the Institute antedates its incorporation, as I presented to the Legislature, during my first year in the House of Representatives, as a member from Salem, the petition of which the incorporation was the sequel.

I hope everything will go off well, and am

Yours faithfully,
WILLARD P. PHILLIPS.
FEB. 24, 1898.

PRESIDENT'S ROOM,
BROWN UNIVERSITY,
PROVIDENCE, FEB. 24, 1898.

MY DEAR SIR: —

I feel highly complimented by the receipt of this ticket; but, as I am so situated that I cannot use it, beg to return it.

Sincerely,
E. BENJ. ANDREWS.

FRANCIS A. OSBORN presents his thanks to the Essex Institute for the courtesy of its invitation to attend the fiftieth anniversary of its founding on March 2 next, and regrets that imperative business engagements on that day deprive him of the pleasure of accepting it.
BOSTON, FEB. 25, 1898.

SALEM, MASSACHUSETTS,
FEB. 25, 1898.

H. M. BROOKS, Sec'y E. I.

MY DEAR SIR:—

Please extend to the officers and members of the Institute my grateful thanks for their invitation to attend the celebration of its golden anniversary, and my deep regret that I find myself unable to join them on that notable occasion, much as I should be delighted to do so. One of the severest deprivations incident to my prolonged stay within the domain of Old Time is my inability to visit the attractive halls of the Institute, delve among its historic treasures and enjoy the congenial companionship always sure to be found there, as it was for years my privilege to experience. But we all find, sooner or later, that this Potentate is an absolute despot, and is not accustomed to wield his hour glass and scythe in accordance with the convenience, desires or caprices of any mortal, and we must perforce submit to his decrees.

So, being in my 85th year, and much the worse for wear, I am compelled to acknowledge:

"It is time to be old
To take in sail:—
* * * * * *
As the bird trims his to the gale,
I trim myself to the storm of time;
I man the rudder, reef the sail,
Obey the voice at eve obeyed at prime."

The most I can hope for is to read the record of proceedings which are sure to be of absorbing interest, and to revive and live over again, in my seclusion, the vivid memories of the past,

Subscribing myself your fellow member and friend,

CHARLES W. PALFRAY.
per P.

PROVIDENCE, FEB. 25, 1898.

MR. HENRY M. BROOKS,
SECRETARY ESSEX INSTITUTE,
SALEM, MASS.

DEAR SIR:—

It is a matter of great regret to me that I shall not be able to be present at the celebration of the fiftieth anniversary of the founding of the Essex Institute, to show my respects for its founders and present efficient workers who have built up an institution that not only reflects credit upon the City of Salem but also upon the State of Massachusetts and the Nation.

It would be invidious to name individuals to whom honor is due, except for one name, and that is Dr. Henry Wheatland to whom the Institute is the most fitting memorial. Please accept my thanks for the honor conferred in inviting me, and convey my regrets to your committee.

Sincerely yours,

ALFRED STONE.

MR. ARLO BATES regrets that he is unable to accept the courteous invitation to the celebration of the fiftieth anniversary of the Essex Institute, and sends his heartiest good wishes and congratulations.
BOSTON, FEB'Y 25th, 1898.

TRINITY COLLEGE LIBRARY,
HARTFORD, CONN. FEB. 26, 1898.

MY DEAR SIR: —

I regret that I am unable to attend the interesting commemoration on the 2d of March. The Essex Institute has had a successful half century of work and service, and I wish it prosperity for the time to come.

Truly yours,

SAMUEL HART.

CAMBRIDGE, FEB. 26, 1898.

PRESIDENT OF THE ESSEX INSTITUTE:

DEAR SIR: —

Your personal invitation to be present at the celebration of the fiftieth anniversary of the founding of the Essex Institute and to take part in the speaking has just reached me. I had previously received a general invitation from the Secretary, but had not replied, in the hope that I might be able to arrange my engagements so that I could accept.

I regret exceedingly that urgent business matters will not allow me to be absent from Boston on the second of March.

Although it is now over twenty years since I moved away from Salem, I have not forgotten the seven years that I lived in that city,

partly under the hospitable shelter of the Essex Institute and partly under that of its sister institution, the Peabody Academy.

It would have been a real pleasure to me to take part in a celebration in honor of an institution to which I have been so deeply indebted for sympathy and encouragement at a time in my life when these were most needed. Your institution and personal association with Dr. Wheatland helped me and others to encounter the difficulties that beset the teaching and investigation of science.

You have set before us as well as the community at large brilliant examples of unselfish devotion to the highest purposes, that have had predominant influence for good, not only upon the institutions with which we have been connected, but upon all similar undertakings throughout this country. The Essex Institute can consequently not only congratulate its members upon the record of the past fifty years, but most confidently look forward to the future in the hope that, with larger means and greater opportunity, it may make the history of the next fifty years even fuller and richer than that of the last half-century of its existence.

Thanking you for the honor conferred by your invitation and again expressing my sincere regret that I shall not be able to give personal and fuller evidence of my obligations and interest in the work of the Institute, I remain

Very respectfully yours,

ALPHEUS HYATT.

MASSACHUSETTS SENATE,
PRESIDENT'S ROOM, STATE HOUSE, BOSTON,
FEB. 26, 1898.

MR. HENRY M. BROOKS,
SECRETARY ESSEX INSTITUTE,
SALEM, MASS.

DEAR SIR: —

I thank you for the ticket of admission to your exercises in commemoration of the founding of the Essex Institute at Salem on March 2, 1898. I should be very much pleased to attend, but the Senate will be in Session at that time and there is considerable business in prospect for next week and, therefore, I think I shall have to decline your kind invitation.

Yours truly,

GEORGE E. SMITH.

SWAMPSCOTT, MASS.
FEB. 27, 1898.

HENRY M. BROOKS, Sec'y.

DEAR SIR: —

I regret that other important engagements will prevent my being present at the fiftieth anniversary exercises of the Essex Institute. Trusting the occasion will be a memorable one,

I am very truly yours,

ELIHU THOMSON.

WORCESTER POLYTECHNIC INSTITUTE,
OFFICE OF THE PRESIDENT,
WORCESTER, MASS., FEB. 27, 1898.

MR. HENRY M. BROOKS,
SECRETARY ESSEX INSTITUTE,
SALEM, MASS.

DEAR MR. BROOKS: —

I regret very much that another engagement will prevent my accepting your kind invitation to join in celebrating the fiftieth anniversary of the founding of the Essex Institute, on Wednesday next.

Thanking you very much for your courtesy in sending it, I am

Yours faithfully,

T. C. MENDENHALL.

LYNN, FEB. 28, 1898.

HENRY M. BROOKS, ESQ., SECRETARY,
THE ESSEX INSTITUTE,
SALEM, MASS.

DEAR SIR: —

In reply to your kind invitation to be present at the fiftieth anniversary celebration of the Essex Institute, permit me to say that it would have afforded me great pleasure to be present, but I regret exceedingly that unavoidable circumstances have arisen which will prevent my attendance. With sincere thanks, I remain

Respectfully yours,

C. A. AHEARNE, M.D.,

President Essex South District Medical Society.

PUBLIC LIBRARY,
ROCKPORT, MASS., FEB'Y 28, 1898.

HENRY M. BROOKS, ESQ., SECRETARY.

MY DEAR SIR: —

I beg to acknowledge, with thanks, your polite invitation for the librarian and myself to be present at the celebration of your fiftieth anniversary on March 2d, and regret to say that neither of us will be able to be present.

Trusting you may have the abundant success that your Institute so much deserves, I am

Very truly yours,
J. LORING WOODFALL, Pres't Trustees.

BOSTON AND MAINE RAILROAD,
PRESIDENT'S OFFICE,
BOSTON, FEBRUARY 28, 1898.

MR. HENRY M. BROOKS,
ESSEX INSTITUTE, SALEM, MASS.

DEAR SIR: —

I thank you for your invitation to be present at the fiftieth anniversary of the founding of the Essex Institute, on the 2d prox., but regret that an important engagement will keep me in Boston that day and will prevent me from being present.

Yours truly,
LUCIUS TUTTLE,
President.

NEW ENGLAND MAGAZINE.

BOSTON, MASS.,
FEB. 28, 1898.

HON. ROBERT S. RANTOUL, PRES'T. &c.

DEAR SIR: —

I am sincerely sorry that the pressure of many duties will prevent my being present at your interesting meeting on Wednesday. It would give me great pleasure to be present at your celebration. The Essex Institute has done a unique and splendid service in historical scholarship and study in Massachusetts, and we are all your debtors.

Yours truly,
EDWIN D. MEAD.

TOPSFIELD HISTORICAL SOCIETY,
TOPSFIELD, MASS., FEB. 28th, 1898.

HENRY M. BROOKS, Esq., Sec'y.

DEAR SIR:—

Thanks for your kind invitation to attend the semi-centennial of the founding of the Essex Institute.

I very much regret my inability to be present on the interesting occasion. Wishing every success to the meeting, I am

Yours, very truly,
JUSTIN ALLEN,
Pres't Topsfield Hist. Soc'y.

FEB. 28, '98.

Am very sorry that I cannot be present.

AUGUSTUS HEMENWAY.

CITY OF NEWBURYPORT,
OFFICE OF CITY CLERK.
MARCH 1ST, 1898.

MR. HENRY M. BROOKS, SECY.
SALEM, MASS.

DEAR SIR:—

It is with regret that I am obliged to return the enclosed ticket, but at this time my official duties are such that I am obliged to take this course.

Thanking you for the courtesy extended I am,

Very rsp'y yours,
GEORGE H. PLUMER,
Mayor.

NO. ANDOVER,
MARCH 1, 1898.

MR. MOSES T. STEVENS accepts with pleasure the invitation of the Essex Institute to attend the celebration of their fiftieth anniversary on March 2, 1898.

AMHERST COLLEGE LIBRARY,
W. I. FLETCHER, Librarian.

AMHERST, MASS., MAR. 1, 1898.

H. M. BROOKS, ESQ.,
SECRETARY ESSEX INSTITUTE.

DEAR SIR: —

According to your request I return the enclosed card. Up to to-day I have hoped to use it myself, but am now obliged to give up the pleasure of being with you to-morrow.

Very truly yours,
W. I. FLETCHER.

CAMBRIDGE, MARCH 1, 1898.

DEAR MR. RANTOUL,

It is a source of regret to me that I am prevented by other engagements from being present at to-morrow's celebration in Salem. I always feel a real affection for the home of my ancestors and for the institution which has so well preserved the history of past centuries.

Cordially yours,
THOMAS WENTWORTH HIGGINSON.

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63 MT. VERNON STREET, BOSTON.
MARCH 1, 1898.

The President of the Historic-Genealogical Society is unable, owing to illness, to visit the Essex Institute on the celebration of its fiftieth anniversary, much to his regret. Representatives of the Society will be present.

The President congratulates the Society upon its success and usefulness to the community.

SALEM, MARCH 2, 1898.

DEAR MR. RANTOUL: —

I had hoped until a few days that I should be able to attend the exercises of the fiftieth anniversary of the found-

ing of the Essex Institute, but I find the state of my health will not permit me to be present, which I deeply regret.

Hoping that the occasion will be enjoyed by all who take part,

I am

Sincerely yours,

HENRY M. BROOKS,

Secretary Essex Institute.

To

HON. ROBERT S. RANTOUL.

PROVIDENCE, R. I.

MARCH 3, '98.

MY DEAR MR. BROOKS:

I am very much mortified to find that the 2d of March has passed, and your kind invitation to attend the celebration of the fiftieth anniversary of the Essex Institute not answered. I hoped to be able to attend, and meant to write you to that effect, but your invitation came while I was unwell, and finally got overlooked.

I have the warmest attachment to the Institute, and remember with gratitude all it has done for me, and wish it every prosperity and success.

Yours sincerely,

A. S. PACKARD.

HENRY M. BROOKS, Sec'y.

WILLIAMS COLLEGE,

WILLIAMSTOWN, MASS., MARCH 14, 1898.

MY DEAR SIR: —

Only yesterday I noticed on the ticket which you so kindly sent me for your commemoration the request to return the ticket if I could not use it. I regarded it as a great compliment that you sent me such a ticket but found it impossible to attend your exercises. Will you please accept my most humble apology for having failed to acknowledge so marked a courtesy, and especially for neglecting to return the ticket.

Very respectfully yours,

FRANKLIN CARTER.

To H. M. BROOKS, Sec'y, &c.

LIST OF THE PRESENT MEMBERS

OF THE

ESSEX INSTITUTE.

The names of life members are marked thus *

NAME.	RESIDENCE.	DATE OF ELECTION.
Abbot, Edwin H.,	Cambridge, Mass.	Aug. 17, 1896.
Abbot, Dr. Francis E.,	" "	Dec. 2, 1894.
Abbot, Walter L.,	Salem, Mass.	May 7, 1894.
Abbott, Joseph C.,	" "	June 4, 1894.
Abbott, Nathaniel,	" "	Jan. 16, 1888.
Adam, William L.,	Pittsfield, Mass.	Aug. 3, 1896.
Albree, Edward C.,	Swampscott, Mass.	March 21, 1898.
Albree, John, jr.,	" "	Feb. 21, 1898.
Allen, Charles F.,	Salem, Mass.	June 18, 1894.
Allen, Miss Elizabeth C.,	" "	July 2, 1894.
Allen, George H.,	" "	Jan. 16, 1888.
Allen, George L.,	" "	July 2, 1894.
Almy, James F.,	" "	July 6, 1864.
Almy, Mrs. James F.,	" "	March 19, 1894.
Anderson, John M.,	" "	May 6, 1895.
Andrews, Clement W.,	Boston, Mass.	June 3, 1895.
Andrews, William P.,	Salem, Mass.	July 22, 1870.
Annable, E. Augustus,	" "	Aug. 6, 1894.
Appleton, Daniel,	Marblehead, Mass.	May 6, 1895.
Appleton, Francis H.,	Boston, Mass.	Aug. 10, 1870.
Appleton, William S., jr.,	" "	Aug. 17, 1896.
Archer, Miss Rebecca,	Salem, Mass.	July 7, 1879.
Arey, Reuben,	" "	Dec. 16, 1867.
Arey, William R.,	" "	March 21, 1898.

NAME.	RESIDENCE.	DATE OF ELECTION.
Arrington, Philip P. P.,	Salem, Mass.	Feb. 21, 1898.
Arvedson, George,	" "	Feb. 21, 1898.
Ashton, Joseph N.,	" "	Aug. 17, 1896.
Austin, Arthur S.,	Boston, Mass.	Sept. 17, 1894.
Averill, Arthur L.,	Salem, Mass.	June 1, 1896.
Averill, James W.,	" "	Dec. 23, 1867.
Averille, Arthur A.,	" "	Aug. 6, 1894.
Aylward, George A.,	" "	Feb. 18, 1895.
Bachelder, Nathan A.,	Salem, Mass.	April 16, 1894.
Baker, Henry A.,	Montville, Ct.	May 6, 1895.
Balcomb, James W.,	Salem, Mass.	Sept. 18, 1893.
Bancroft, Robert H.,	Boston, Mass.	Sept. 4, 1894.
Barker, Benjamin,	Salem, Mass.	June 18, 1895.
Barker, William G.,	" "	April 30, 1894.
Barnes, Mrs. Carrie E.,	Methuen, Mass.	Feb. 21, 1898.
Barnes, Mrs. Clara L.,	Brookline, Mass.	Sept. 17, 1894.
Barrett, Henry H.,	Malden, Mass.	Nov. 2, 1896.
Bartlett, Albert L.,	Haverhill, Mass.	July 20, 1896.
Bartol, Miss Elizabeth H.,	Manchester, Mass.	Aug. 5, 1895.
Batchelder, Miss Alice S.,	Salem, Mass.	May 20, 1895.
Batchelder, George E.,	Amesbury, Mass.	Aug. 10, 1894.
Batchelder, Henry M.,	Salem, Mass.	April 7, 1879.
Battis, Edward C.,	" "	Nov. 2, 1885.
Battis, Mrs. Marie A.,	" "	Feb. 21, 1898.
Beaman, Charles C.	New York City.	Feb. 18, 1895.
Beckwith, Walter P.,	Salem, Mass.	Oct. 19, 1896.
Bell, John H.,	" "	July 2, 1894.
Bell, Rev. S. Linton,	Marblehead, Mass.	Aug. 6, 1894.
Bennett, Josiah C.,	Lynn, Mass.	June 4, 1894.
Benson, Arthur F.,	Salem, Mass.	Dec. 21, 1891.
Benson, Frank W.,	" "	May 7, 1894.
Berry, Francis T.,	" "	July 16, 1894.
Bigelow, Walter K.,	" "	April 5, 1869.
Billings, Robert C.,	Jamaica Plain, Mass.	July 15, 1895.
Bixby, Henry M.,	Salem, Mass.	May 7, 1894.
Bixby, S. Arthur,	" "	June 18, 1894.
Blaisdell, Dr. George W.,	Manchester, Mass.	Feb. 17, 1896.
Blake, Mrs. S. Parkman,	Boston, Mass.	Aug. 5, 1895.
Blake, Mrs. Sarah P. L.,	" "	Feb. 18, 1895.
Blaney, Dwight,	" "	June 4, 1890.
Blaney, Mrs. Edith H.,	" "	Oct. 1, 1894.
Blodgette, George B.,	Rowley, Mass.	July 2, 1894.
Boardman, T. Dennie,	Boston, Mass.	Aug. 5, 1895.

NAME.	RESIDENCE.	DATE OF ELECTION.
Bond, Henry R.,	New London, Ct.	May 6, 1895.
Bosson, Mrs. Jennie H.,	Reading, Mass.	Sept. 17, 1894.
Bowditch, Miss Charlotte,	Jamaica Plain, Mass.	Nov. 19, 1894.
Bowditch, Charles P.,	Boston, Mass.	April 30, 1894.
Bowditch, Dr. Henry P.,	Jamaica Plain, Mass.	Oct. 1, 1894.
Bowditch, William I.,	Boston, Mass.	Aug. 6, 1894.
Bowditch, Dr. Vincent Y.,	" "	Jan. 7, 1895.
Bowdoin, Mrs. Lucy H.,	Salem, Mass.	Jan. 3, 1876.
Bowker, Charles,	" "	July 6, 1864.
Bowker, George,	" "	July 6, 1864.
Boyd, Ernest,	" "	June 4, 1894.
Braden, Mrs. James,	" "	Jan. 19, 1880.
Bradlee, Mrs. Josiah,	Boston, Mass.	May 4, 1895.
Breed, Amos F.,	Lynn, Mass.	Feb. 18, 1895.
Bridgman, Lewis J.,	Salem, Mass.	Aug. 21, 1893.
Briggs, Miss Mary E.,	" "	Feb. 6, 1888.
Brigham, Clifford,	" "	Aug. 15, 1892.
Brodie, Rev. James F.,	" "	Jan. 20, 1890.
Brooks, John F.,	Boston, Mass.	Dec. 12, 1856.
Brooks, Henry M.,	Salem, Mass.	May 3, 1848.
Brooks, Lyman B.,	Boston, Mass.	Oct. 21, 1895.
Brooks, Miss Margarette W.,	Salem, Mass.	Feb. 7, 1898.
Brooks, Peter C.,	Medford, Mass.	Oct. 1, 1894.
Brooks, Dr. Stephen D.,	Port Townsend, Wash.	May 3, 1897.
Brown, A. Percy,	Salem, Mass.	Feb. 21, 1898.
Brown, Alfred B.,	" "	July 5, 1887.
Brown, Arthur H.,	" "	July 19, 1886.
Brown, Charles D.,	" "	May 3, 1897.
Brown, Edward F.,	" "	June 4, 1894.
Brown, Frank A.,	" "	June 30, 1882.
Brown, Miss Mary G.,	Lynn, Mass.	May 6, 1895.
Brown, Mrs. Willard H.,	Salem, Mass.	Oct. 15, 1896.
Browne, A. Parker,	Malden, Mass.	Sept. 17, 1894.
Browne, Mrs. Charlotte C.,	Salem, Mass.	March 4, 1895.
Browne, Edward C.,	" "	March 21, 1892.
Browne, Josiah H.,	" "	July 2, 1894.
Browning, John F.,	" "	March 6, 1893.
Buckham, Rev. John W.,	" "	July 3, 1893.
Buffum, Charles,	Lynn, Mass.	Sept. 3, 1895.
Buffum, Edgar S.,	Salem, Mass.	Sept. 18, 1893.
Bullock, Mrs. Mary C.,	Worcester, Mass.	Jan. 21, 1895.
Burchmore, Stephen W.,	Hartford, Ct.	July 1, 1895.
Bushby, Nathan A.,	Peabody, Mass.	March 21, 1898.

NAME.	RESIDENCE.	DATE OF ELECTION.
Butler, James S.,	Salem, Mass.	Oct. 1, 1894.
Buxton, Charles A.,	" "	June 20, 1882.
Buxton, Mrs. Ellen M.,	Peabody, Mass.	May 3, 1897.
Capen, Edward,	Haverhill, Mass.	July 20, 1896.
Carey, Arthur A.,	Boston, Mass.	Oct. 1, 1894.
Carey, J. Henry,	Salem, Mass.	Aug. 6, 1894.
Carleton, Joseph G. S.,	Lynn, Mass.	March 16, 1896.
Carlton, Samuel A.,	Boston, Mass.	July 15, 1895.
Carroll, Thomas,	Peabody, Mass.	May 21, 1894.
Case, William S.,	Hartford, Ct.	Dec. 2, 1895.
Casey, James C.,	Salem, Mass.	Feb. 21, 1898.
Cass, William F.,	" "	March 19, 1894.
Cate, Frederick,	" "	May 6, 1895.
Chadwick, Joseph H.,	Boston, Mass.	Jan. 21, 1895.
Chamberlain, Edward W.,	Louisville, Ky.	July 1, 1895.
Chamberlain, James A.,	Boston, Mass.	May 10, 1865.
Chamberlain, Mrs. Mary E.,	Birmingham, Eng.	March 4, 1895.
Chamberlain, Miss Sarah P.,	Salem, Mass.	Aug. 20, 1894.
Chapman, Frank N.,	" "	Jan. 19, 1874.
Chapman, William O.,	" "	April 6, 1885.
Chapple, William D.,	" "	June 4, 1894.
Chase, Miss Ellen,	Brookline, Mass.	Feb. 3, 1896.
Chase, George,	Salem, Mass.	Nov. 21, 1887.
Chase, Philip A.,	Lynn, Mass.	June 4, 1894.
Chase, R. Stuart,	Haverhill, Mass.	July 20, 1896.
Cherrington, Dr. Leroy J.	Salem, Mass.	March 20, 1893.
Chever, Charles G.,	" "	Sept. 17, 1894.
Chever, William J.,	North Andover, Mass.	Sept. 17, 1894.
Chisholm, Wallace A.,	Salem, Mass.	May 19, 1894.
Choate, Charles F.,	Boston, Mass.	Aug. 20, 1894.
Choate, Miss Hannah E.,	Salem, Mass.	July 16, 1894.
Choate, John H.,	" "	May 7, 1894.
Choate, Joseph H.,	New York City.	July 2, 1894.
Choate, William G.,	" " "	Aug. 20, 1894.
Clark, Clarence S.,	Salem, Mass.	March 19, 1894.
Clark, Rev. DeWitt S.,	" "	March 3, 1879.
Clark, Miss E. Dora,	" "	March 16, 1898.
Clark, Miss Elizabeth H.,	Cambridge, Mass.	Feb. 21, 1898.
Clarke, Dr. Maurice D.,	Haverhill, Mass.	May 6, 1895.
Cleveland, Dr. Clement,	New York City.	Oct. 19, 1896.
Cleveland, Miss Mary S.,	Salem, Mass.	Sept. 20, 1887.
Cleveland, Treadwell,	New York City.	Sept. 16, 1895.

NAME.	RESIDENCE.	DATE OF ELECTION.
Cleveland, William A.,	Salem, Mass.	April 1, 1895.
Coburn, Charles H.,	Lowell, Mass.	Nov. 4, 1895.
Codman, Mrs. Martha P. R.,	Boston, Mass.	Sept. 17, 1894.
Coggin, Dr. David,	Salem, Mass.	Jan. 8, 1874.
Cogswell, George,	Bradford, Mass.	1870.
Colby, Henry L.,	Salem, Mass.	April 21, 1884.
Colby, William R.,	" "	April 1, 1895.
Cole, Albert E.,	" "	May 7. 1894.
Cole, Miss Caroline J.,	" "	Dec. 17, 1894.
Cole, Leland H.,	" "	March 19, 1894.
Collester, Frank M.,	" "	Oct. 19, 1896.
Collier, Perry,	Beverly, Mass.	Sept. 4, 1894.
Collins, George A.,	Salem, Mass.	July 16, 1894.
Converse, Elisha S.,	Malden, Mass.	Dec. 17, 1894.
Conway, John H.,	Salem, Mass.	Nov. 5, 1894.
Cook, Henry A.,	" "	May 6, 1895.
Cook, Howard H.,	" "	Feb. 7, 1898.
Coolidge, T. Jefferson, jr.,	Boston, Mass.	Oct. 1, 1894.
Coolidge, William W.,	Salem, Mass.	April 16, 1894.
Corliss, Benjamin H.,	Gloucester, Mass.	Nov. 4, 1895.
Cotting, Charles E.,	Boston, Mass.	Feb. 3, 1896.
Cousins, Frank,	Salem, Mass.	Sept. 8, 1886.
Cox, Francis,	" "	March 10, 1853.
Creesy, George W.,	" "	Oct. 4, 1886.
Crowninshield, Mrs. Benj. W.	Boston, Mass.	Oct. 15, 1894.
Cummins, Miss Martha,	Salem, Mass.	Aug. 5, 1895.
Cunningham, Henry W.,	Boston, Mass.	Oct. 15, 1894.
Cunningham, Lawrence,	Salem, Mass.	Feb. 19, 1883.
Currier, Benjamin W.,	Lynn, Mass.	April 16, 1894.
Currier, John J.,	Newburyport, Mass.	Sept. 4, 1894.
Curtis, Charles E.,	Salem, Mass.	July 16, 1894.
Curtis, Heman F.,	" "	Jan. 21, 1895.
Curwen, Miss Bessie H.,	" "	Feb. 21, 1898.
Curwen, Charles F.,	" "	Feb. 21, 1898.
Curwen, George R.,	" "	Feb. 14, 1849.
Cushman, Miss Alice,	Philadelphia, Pa.	April 21, 1896.
Dabney, Lewis S.,	Boston, Mass.	Jan. 6, 1896.
Daland, John,	Salem, Mass.	April 1, 1895.
Dalton, J. Frank,	" "	March 19, 1894.
Dalton, Larkin A.,	" "	Nov. 19, 1894.
Damon, Frank C.,	" "	May 21, 1895.
Damon, Robin,	" "	Jan. 16, 1888.

NAME.	RESIDENCE.	DATE OF ELECTION.
Dane, Joseph F.,	Salem, Mass.	Sept. 16, 1857.
Danforth, Charles H.,	" "	June 4, 1894.
Danforth, John M.,	Lynnfield Center, Mass.	Feb. 4, 1895.
Davis, Andrew McF.,	Cambridge, Mass.	Aug. 20, 1894.
Davis, Charles S.,	Salem, Mass.	June 18, 1895.
Davison, Herbert N.,	" "	Oct. 19, 1896.
Dean, James F.,	" "	Sept. 4, 1894.
Dennis, Albert W.,	Lynn, Mass.	Feb. 1, 1897.
Dennis, William D.,	Salem, Mass.	May 3, 1880.
Derby, Dr. Haskett,	Boston, Mass.	Aug. 20, 1894.
Derby, Dr. Richard H.	New York City.	Jan. 7, 1895.
Derby, Willard F.,	Salem, Mass.	June 4, 1894.
Derby, William H.,	" "	May 7, 1894.
D'Este, Julian,	" "	July 2, 1894.
Devereux, Miss Marianne S.,	" "	Feb. 15, 1897.
Devlin, John H.,	" "	Sept. 16, 1895.
Dexter, Mrs. Sarah R.,	Boston, Mass.	Sept. 17, 1894.
Dickson, Walter S.,	Salem, Mass.	March 20, 1893.
Doane, Miss May B.,	" "	Sept. 16, 1895.
Dodd, Andrew W.,	" "	Feb. 21, 1898.
Dodge, Elisha P.,	Newburyport, Mass.	July 2, 1894.
Dodge, Miss Ellen M.,	Salem, Mass.	Nov. 14, 1866.
Dodge, Rev. John W.,	Newburyport, Mass.	March 16, 1896.
Dodge, Robert F.,	Wenham, Mass.	Aug. 20, 1894.
Dorr, George B.,	Boston, Mass.	April 1, 1895.
Dow, George Francis,	Topsfield, Mass.	Aug. 15, 1892.
Dowbridge, Henry F.,	Salem, Mass.	Nov. 5, 1894.
Downing, John P.,	" "	Aug. 20, 1894.
Draper, Miss Annie C.,	" "	May 6, 1895.
Driver, Edward A.,	Chicago, Ill.	July 1, 1895.
Driver, Dr. Stephen W.,	Cambridge, Mass.	Sept. 16, 1895.
Driver, William R.,	Boston, Mass.	March 5, 1888.
Dubois, Mrs. Clara P.,	Danvers, Mass.	Oct. 19, 1896.
Dudley, Dr. Albion M.,	Salem, Mass.	Jan. 13, 1868.
Dwight, Mrs. Theodore F.,	Boston, Mass.	Nov. 19, 1894.
Dyer, Charles G.,	Salem, Mass.	Aug. 19, 1895.
*Eaton, John D.,	Salem, Mass.	July 22, 1876.
*Edes, Henry H.,	Cambridge, Mass.	March 17, 1886.
Edwards, Henry W.,	Salem, Mass.	Aug. 26, 1885.
Emerton, Prof. Ephraim,	Cambridge, Mass.	Nov. 5, 1894.
Emilio, Luis F.,	New York City.	Oct. 15, 1894.
Emmerton, Miss Caroline O.,	Salem, Mass.	March 19, 1894.

NAME.	RESIDENCE.	DATE OF ELECTION.
Emmerton, Charles S.,	West Peabody, Mass.	Feb. 7, 1898.
Emmerton, E. Augustus,	Salem, Mass.	Jan. 16, 1888.
Emmerton, Frederick A.,	Cleveland, O.	June 1, 1896.
Emmerton, Mrs. Jennie M.,	Salem, Mass.	March 19, 1894.
Endicott, Henry,	Boston, Mass.	Sept. 16, 1895.
Endicott, Mrs. Louise,	Danvers, Mass.	Oct. 1, 1894.
Endicott, William, jr.,	Boston, Mass.	Sept. 4, 1894.
Endicott, William C.,	Danvers, Mass.	May 31, 1854.
Endicott, William C., jr.,	Danvers, Mass.	Oct. 1, 1894.
Endicott, William, 3d,	Boston, Mass.	April 1, 1895.
Entwisle, J. Clifford,	Salem, Mass.	March 6, 1893.
Evans, Forrest L.,	" "	Aug. 6, 1894.
Everett, Mrs. Katherine,	Washington, D. C.	Feb. 4, 1895.
Fabens, B. Louis,	Salem, Mass.	Oct. 15, 1894.
Fabens, Frank P.,	" "	June 4, 1894.
Fabens, Mrs. William C.,	Marblehead, Mass.	Sept. 17, 1894.
Fanning, James,	Salem, Mass.	Feb. 1, 1897.
Farley, Charles B.,	Peabody, Mass.	Sept. 4, 1894.
Farnham, Rev. Edwin P.,	Salem, Mass.	July 3, 1893.
Farnham, Frank E.,	Peabody, Mass.	Feb. 4, 1895.
Farnham, Mrs. Stephen H.,	Brooklyn, N. Y.	March 4, 1895.
Farrell, Hugh F. E.,	Salem, Mass.	Oct. 18, 1897.
Farrington, Mrs. Susan B.,	" "	March 21, 1892.
Felt, John P.,	" "	July 16, 1894.
Fettyplace, Miss Sarah B.,	" "	June 18, 1894.
Fifield, Charles H.,	" "	June 18, 1894.
Files, Miss Lucy W.,	" "	May 15, 1893.
Fiske, John,	Cambridge, Mass.	Aug. 20, 1894.
Fitz, Andrew,	Salem, Mass.	March 19, 1894.
Flagg, Augustus,	Boston, Mass.	Aug. 5, 1895.
Fleming, Charles H.,	Manchester, Mass.	Oct. 19, 1896.
*Fletcher, Horace,	New Orleans, La.	Oct. 16, 1894.
Fogg, Francis A.,	New York City.	Aug. 20, 1894.
Foote, Arthur,	Boston, Mass.	Aug. 20, 1894.
Forness, Arthur A.,	Beverly, Mass.	April 30, 1894.
Foster, Charles H. W.,	Brookline, Mass.	April 6, 1896.
Foster, James M.,	Salem, Mass.	April 1, 1895.
Foster, John M.,	" "	April 1, 1895.
Fowler, Harriet P.,	Danvers, Mass.	Feb. 18, 1889.
Fox, Charles W.,	Philadelphia, Pa.	April 1, 1895.
Frankle, Jones,	Haverhill, Mass.	May 6, 1895.
Franks, Rev. James P.,	Salem, Mass.	Nov. 17, 1873.

NAME.	RESIDENCE.	DATE OF ELECTION.
Frost, Miss Mary F.,	Salem, Mass.	June 4, 1894.
Fuller, George W.,	" "	July 16, 1894.
Fuller, Henry O.,	" "	July 16, 1894.
Fuller, Mrs. Lucy D.,	Boston, Mass.	Jan. 7, 1895.
Furness, George A.,	Salem, Mass.	June 18, 1894.
*Galloupe, Charles W.,	Swampscott, Mass.	Dec. 2, 1894.
Gallup, Z. Augustus,	Salem, Mass.	Sept. 18, 1893.
Gardner, Mrs. Daniel B.,	" "	March 21, 1898.
Gardner, Dr. Frank A.,	" "	Feb. 18, 1898.
*Gardner, Mrs. Isabella S.,	Boston, Mass.	Aug. 22, 1895.
Gardner, John L.,	" "	Sept. 4, 1894.
Gaston, Mrs. Louisa B.,	" "	Oct. 18, 1897.
Gauss, John D. H.,	Salem, Mass.	Aug. 6, 1889.
Gavet, Louis F.,	" "	May 7, 1894.
Geary, John E.,	" "	July 5, 1887.
George, Edward B.,	Haverhill, Mass.	Jan. 17, 1898.
Gifford, Josiah H.,	Salem, Mass.	Feb. 21, 1898.
Gifford, Nathan P.,	" "	Feb. 7, 1898.
Gilbert, Mrs. Clara L.,	" "	Feb. 21, 1898.
Gilbert, Shepard D.,	" "	April 30, 1894.
Gillis, James A.,	Winchendon, Mass.	Jan. 4, 1854.
Glover, Miss Grace A.,	Salem, Mass.	Feb. 6, 1888.
Godden, Miss Mary E.,	Peabody, Mass.	Feb. 16, 1891.
Goldthwaite, Mrs. Eliza H.,	Salem, Mass.	Feb. 21, 1898.
Gooch, Frank A.,	New Haven, Ct.	March 18, 1895.
*Goodell, Abner C.,	Salem, Mass.	Nov. 18, 1857.
Goodell, Zina,	" "	April 30, 1894.
Goodhue, Mrs. Albert P.,	" "	March 21, 1898.
Goodhue, George C.,	" "	July 16, 1894.
Goodhue, Mrs. George C.,	" "	March 21, 1898.
Goodhue, Miss Margaret,	" "	July 2, 1894.
Goodhue, Samuel V.,	" "	April 16, 1894.
Gove, William H.,	" "	Sept. 5, 1882.
Grant, Miss Beatrice,	" "	Aug. 20, 1894.
Grant, George W.,	Salem, Mass.	April 30, 1894.
Gray, John C.,	Boston, Mass.	Jan. 21, 1895.
Gray, Reginald,	" "	Feb. 18, 1895.
Greenlaw, Mrs. Lucy H.,	Cambridgeport, Mass.	Dec. 16, 1895.
Greenlaw, William P.,	" "	May 4, 1896.
Greenough, Mrs. Charles E.,	Beverly, Mass.	Feb. 18, 1895.
* Gregory, James J. H.,	Marblehead, Mass.	Sept. 4, 1868.
Groves, Mrs. Henry B.,	Salem, Mass.	July 18, 1887.

NAME.	RESIDENCE.	DATE OF ELECTION.
Haddock, Dr. Charles W.,	Beverly, Mass.	March 5, 1883.
Hale, Henry A.,	Salem, Mass.	Feb. 2, 1891.
Hale, Mrs. Henry A.,	" "	Feb. 21, 1898.
Hale, Miss Mary S.,	" "	June 18, 1894.
Hale, Willard J.,	Newburyport, Mass.	Feb. 7, 1898.
Harlow, Arthur F.,	Salem, Mass.	Oct. 5, 1896.
Harrington, Francis,	Boston, Mass.	Nov. 18, 1857.
Harrington, Henry,	Salem, Mass.	Jan. 16, 1888.
Harrington, Mrs. Henry,	" "	Jan. 16, 1888.
Harrington, Richard,	" "	July 16, 1894.
Harris, George M.,	" "	Aug. 4, 1879.
Harris, George R.,	Brookline, Mass.	Nov. 9, 1870.
Harris, Howard P.,	Salem, Mass.	July 2, 1894.
Hart, John W.,	" "	April 30, 1894.
Harwood, Herbert J.,	Littleton, Mass.	March 4, 1895.
Haskell, Mark H.,	Salem, Mass.	March 4, 1895.
Haskins, Leander M.,	Boston, Mass.	Dec. 16, 1895.
Havemeyer, William F.,	New York City.	Sept. 16, 1895.
Hawkes, Nathan M.,	Lynn, Mass.	April 30, 1894.
Hayden, Mrs. Harriet P.,	New York City.	April 15, 1895.
Hayden, Dr. William R.,	Bedford Springs, Mass.	Sept. 3, 1895.
Hayward, William P.,	Salem, Mass.	Sept. 6, 1854.
*Hemenway, Augustus,	Boston, Mass.	Aug. 6, 1894.
Henderson, Daniel,	Salem, Mass.	May 8, 1867.
Henderson, Joseph,	" "	July 15, 1895.
Higginson, Miss Annie S.,	Magnolia, Mass.	Feb. 3, 1896.
Higginson, Francis L.,	Boston, Mass.	Aug. 20, 1894.
*Higginson, James J.,	New York City.	Sept. 17, 1894.
Hill, B. Frank,	Salem, Mass.	Feb. 4, 1895.
Hill, Rev. James L.,	" "	July 2, 1894.
Hill, William M.,	" "	Aug. 20, 1894.
Hines, Ezra D.,	Danvers, Mass.	June 4, 1874.
Hitchings, A. Frank,	Salem, Mass.	April 2, 1894.
Hodgdon, Samuel,	Everett, Mass.	April 6, 1896.
Hodges, Miss Mary O.,	Topsfield, Mass.	Dec. 19, 1870.
Hoffman, Mrs. Eliza A.,	Salem, Mass.	Jan. 21, 1889.
Holmes, Oliver W.,	Boston, Mass.	Oct. 1, 1894.
Hood, Martin H.,	Lynn, Mass.	Sept. 3, 1895.
Horner, Mrs. Charlotte N. S.,	Georgetown, Mass.	March 18, 1895.
Horton, William A.,	Salem, Mass.	Oct. 27, 1893.
How, George C.,	Haverhill, Mass.	May 6, 1895.
Howe, Joseph S.,	Methuen, Mass.	Aug. 20, 1894.
Hubon, William P.,	Salem, Mass.	March 15, 1897.

NAME.	RESIDENCE.	DATE OF ELECTION.
Hunnewell, James F.,	Charlestown, Mass.	Aug. 19, 1895.
Hunt, Miss Sarah E.,	Salem, Mass.	May 1, 1865.
Huntington, Arthur L.,	" "	April 19, 1875.
Huntington, Miss S. Louisa,	" "	Dec. 19, 1881.
Hussey, William G.,	" "	Aug. 20, 1894.
Hutchinson, John I.,	" "	Feb. 1, 1897.
Hyde, William L.,	" "	March 19, 1894
Jelly, Dr. George F.,	Boston, Mass.	Jan. 6, 1896.
Jelly, William H.,	Salem, Mass.	July 6, 1864.
Jelly, William M.,	" "	July 16, 1894.
Jenks, Rev. Henry F.,	Canton, Mass.	Nov. 16, 1891.
Jenkins, Lawrence W.,	Boston, Mass.	Dec. 2, 1895.
Jewett, Daniel L.,	Salem, Mass.	Sept. 17, 1894.
Jewett, George R.,	" "	June 4, 1874.
Johnson, E. Walter,	Boston, Mass.	March 4, 1895.
Johnson, Enoch S.,	Lynn, Mass.	Feb. 18, 1895.
Johnson, Henry D.,	Salem, Mass.	May 21, 1894.
Johnson, Mrs. Mary C.,	" "	Feb. 21, 1898.
Johnson, Samuel,	Boston, Mass.	Dec. 2, 1894.
Johnson, Thomas H.,	Salem, Mass.	Jan. 3, 1876.
Jones, Gardner M.,	" "	April 8, 1889.
Jones, Mrs. Gardner M.,	" "	Feb. 21, 1898.
Jordan, Cyrus A.,	" "	Apr. 16, 1894.
Kemble, Dr. Arthur,	Salem, Mass.	Jan. 13, 1864.
Kemble, Laurence G.,	" "	Sept. 17, 1894.
Kemble, H. Parker,	Boston, Mass.	April 21, 1896.
Kimball, David P.,	Boston, Mass.	Oct. 1, 1894.
Kimball, Miss Elizabeth C.,	Peabody, Mass.	May 6, 1895.
Kimball, Frank R.,	Salem, Mass.	April 16, 1894.
Kimball, Mrs. Harriet K.,	" "	June 20, 1882.
Kimball, Miss Hattie L.,	" "	June 20, 1882.
Kimball, Mrs. Sarah A.,	Methuen, Mass.	July 16, 1889.
Kimball, Miss Sarah S.,	Salem, Mass.	Nov. 16, 1891.
King, Miss Annie F.,	" "	June 21, 1897.
King, Miss Caroline H.,	" "	May 4, 1896.
King, D. Webster,	Boston, Mass.	April 15, 1895.
King, Miss Harriet M.,	Salem, Mass.	July 27, 1893.
King, Mrs. Sarah G.,	New York City.	April 1, 1895.
King, Miss Susan G.,	Salem, Mass.	May 4, 1896.
King, Warren D.,	Peabody, Mass.	Feb. 21, 1898.
Kinsman, Mrs. S. Augusta,	Salem, Mass.	April 30, 1894.

NAME.	RESIDENCE.	DATE OF ELECTION.
Kittredge, Dr. Thomas,	Salem, Mass.	April 16, 1894.
Knight, Edward H.,	" "	March 6, 1865.
*Lamson, Frederick,	Salem, Mass.	Feb. 8, 1865.
Lander, Miss Helen D.,	" "	April 30, 1894.
Lane, Edward,	" "	Jan. 6, 1896.
Lane, George W.,	" "	March 19, 1894.
Lang, Benjamin J.,	Boston, Mass.	Aug. 6, 1894.
Langmaid, John H.,	Salem, Mass.	April 1, 1878.
Latimer, Rev. George D.,	" "	July 3, 1893.
*Lawrence, Amory A.,	Boston, Mass.	Sept. 16, 1895.
Lawrence, Samuel C.,	Medford, Mass.	April 1, 1895.
Leach, Henry C.,	Salem, Mass.	April 16, 1894.
Leach, J. Granville,	Philadelphia, Pa.	Sept. 16, 1895.
Leavitt, James A.,	Salem, Mass.	Jan. 15, 1894.
Lee, Francis H.,	" "	Nov. 8, 1855.
Lee, Mrs. Francis H.,	" "	Jan. 17, 1876.
Lee, George C.,	Boston, Mass.	Aug. 20, 1894.
Lee, Miss Harriet R.,	Salem, Mass.	Nov. 19, 1894.
Lemon, William H.,	Washington, D. C.	April 15, 1895.
Leonard, William,	Salem, Mass.	Oct. 1, 1894.
Liebert, Miss Katherine S.,	" "	Feb. 4, 1895.
Lincoln, Solomon,	Boston, Mass.	Nov. 9, 1864.
Little, Arthur,	" "	Nov. 5, 1894.
Little, Mrs. Clara B.,	Salem, Mass.	June 8, 1886.
Little, David M.,	" "	June 8, 1886.
Little, James L.,	Brookline, Mass.	Jan. 16, 1888.
Little, John M.,	Boston, Mass.	Dec. 21, 1891.
Locke, Frank E.,	Salem, Mass.	Aug. 6, 1894.
Lord, Miss Mary H.,	" "	April 30, 1894.
Lord, George E.,	" "	July 16, 1894.
Lord, George R.,	" "	April 16, 1894.
Loring, Augustus P.,	Boston, Mass.	Sept. 4, 1894.
Loud, George B.,	New York City.	Nov. 18, 1895.
Low, David W.,	Gloucester, Mass.	April 2, 1894.
Low, Dr. Harry C.,	Salem, Mass.	Feb. 2, 1891.
Low, Seth,	New York City.	June 4, 1894.
Low, S. Fred,	Salem, Mass.	June 4, 1894.
Lowell, Francis C.,	Boston, Mass.	Dec. 2, 1894.
Lowell, Miss Georgina,	" "	March 4, 1895.
Lyman, Miss Florence,	" "	Feb. 4, 1895.
McCusker, Patrick J.,	Salem, Mass.	Sept. 5, 1882.
Machado, Ernest M. A.,	" "	Feb. 15, 1892.

NAME.	RESIDENCE.	DATE OF ELECTION.
McIntire, William S.,	Salem, Mass.	Oct. 1, 1894.
Mack, Thomas F.,	" "	Aug. 6, 1889.
Mackintire, E. Augustus,	" "	April 3, 1882.
Mackintosh, Richards B.,	Peabody, Mass.	Feb. 21, 1898.
McMullan, William P.,	Salem, Mass.	April 16, 1894.
Macnair, John,	Lynn, Mass.	Feb. 4, 1895.
Mahoney, Jeremiah T.,	Salem, Mass.	June 4, 1874.
Maloon, Edward A.,	Beverly, Mass.	Feb. 21, 1898.
Manchester, Rev. Alfred,	Salem, Mass.	July 3, 1893.
Mann, George S.,	Brookline, Mass.	Jan. 7, 1895.
Manning, Mrs. Louisa,	Salem, Mass.	May 5, 1879.
Manning, Richard C.,	" "	March 26, 1851.
Manning, Robert,	" "	Feb. 21, 1898.
Manning, Richard H.,	Kansas City, Mo.	Jan. 4, 1897.
Mansfield, Miss Harriet E.,	Salem, Mass.	June 18, 1895.
Mansfield, Miss Helen,	Gloucester, Mass.	Feb. 18, 1895.
Mansfield, Henry K.,	Salem, Mass.	June 4, 1894.
Matsuki, Bunkio,	" "	July 2, 1894.
Meek, Henry M.,	" "	April 16, 1883.
Meriam, Dr. Horatio C.,	" "	Feb. 5, 1872.
Merrill, Eugene H.,	" "	June 18, 1894.
Merrill, Henry W.,	" "	Jan. 4, 1892.
Merrill, Samuel S.,	" "	April 30, 1894.
Merrill, W. Harvey,	" "	Aug. 20, 1894.
Merrill, William,	West Newbury, Mass.	July 16, 1894.
Messervy, Mrs. Lucy J.,	Salem, Mass.	Sept. 20, 1887.
Meyer, George von L.,	Boston, Mass.	Dec. 3, 1894.
Millea, Lawrence E.,	Salem, Mass.	Feb. 6, 1882.
Miller, Henry F.,	Boston, Mass.	May 4, 1896.
Miller, Lewis F.,	Salem, Mass.	Dec. 20, 1875.
Millet, Edward L.,	Beverly, Mass.	June 4, 1894.
Millett, Nathan H.,	Salem, Mass.	Feb. 21, 1898.
Millett, Mrs. Needham C.,	" "	Feb. 4, 1895.
Mills, Mrs. Ellen L.,	Brooklyn, N. Y.	March 4, 1895.
Missud, Jean M.,	Salem, Mass.	June 20, 1882.
Monroe, Alexander,	Lawrence, Kan.	Sept. 16, 1895.
Moody, William H.,	Haverhill, Mass.	March 4, 1895.
Moore, David,	Salem, Mass.	Feb. 22, 1854.
Morse, Edward S.,	" "	Nov. 9, 1864.
Morse, Henry W.,	" "	March 21, 1898.
Morse, John G.,	" "	Feb. 2, 1891.
Morse, John T., jr.,	Boston, Mass.	March 18, 1895.
Morse, Mrs. Leopold,	" "	Sept. 4, 1894.

NAME.	RESIDENCE.	DATE OF ELECTION.
Morse, Robert M.,	Jamaica Plain, Mass.	May 6, 1895.
Moseley, Charles W.,	Newburyport, Mass.	Aug. 19, 1895.
Moulton, John S.,	Salem, Mass.	Nov. 16, 1891.
Moulton, Henry P.,	" "	April 16, 1894.
Mudge, Dr. Kate G.,	" "	July 16, 1894.
Mullen, Thomas A.,	Boston, Mass.	Dec. 7, 1896.
Mulligan, Bernard J.,	Salem, Mass.	June 4, 1894.
Munroe, Willard E.,	" "	March 21, 1898.
Munroe, William F.,	Peabody, Mass.	Feb. 18, 1895.
Neal, Peter M.,	Lynn, Mass.	May 6, 1895.
Neal, William S.,	Salem, Mass.	April 30, 1894.
Nevins, Mrs. Mary E.,	" "	Feb. 7, 1898.
Nevins, Winfield S.,	" "	Oct. 5, 1877.
Newcomb, George,	" "	Dec. 11, 1875.
Newell, Francis A.,	" "	March 19, 1894.
Newell, Frank F.,	" "	Feb. 21, 1898.
Newhall, Charles H.,	Lynn, Mass.	Feb. 4, 1895.
Newhall, Howard M.,	" "	July 2, 1894.
Nichols, Miss Abby F.,	Salem, Mass.	Feb. 21, 1898.
Nichols, Mrs. James B.	" "	July 2, 1894.
Nichols, William S.,	" "	May 7, 1894.
Niles, William H ,	Lynn, Mass.	Feb. 4, 1895.
Noble, Edward H.,	Beverly, Mass.	Feb. 21, 1898.
Norcross, Orlando W.,	Worcester, Mass.	Feb. 17, 1896.
Norris, Charles H.,	Salem, Mass.	May 17, 1897.
Northey, William,	" "	Nov. 5, 1866.
Nourse, John W.,	Ipswich, Mass.	May 21, 1894.
O'Keefe, John A.,	Lynn, Mass.	July 5, 1887.
Oliver, Mrs. Grace A.,	Salem, Mass.	Nov. 20, 1876.
Oliver, Miss Grace L.,	" "	Jan. 7, 1895.
Oliver, Miss Sarah E. C.,	Boston, Mass.	Nov. 21, 1887.
Oliver, Mrs. Susan L.,	" "	March 18, 1895.
Orne, Joel S..	Cambridge, Mass.	Nov. 18, 1895.
Osborn, Franklin,	Peabody, Mass.	Sept. 4, 1894.
Osborn, Lyman P.,	" "	Feb. 17, 1896.
Osborne, Aaron,	Salem, Mass.	Feb. 4, 1895.
Osborne, Miss Elizabeth B.,	" "	July 2. 1894.
Osborne, Dr. George S.,	" "	Sept. 4, 1894.
Osborne, Rev. Louis S.,	Newark, N. J.	Jan. 6, 1896.
Osborne, Theodore M.,	Salem, Mass.	Oct. 21, 1879.
Osgood, Alfred,	Newburyport, Mass.	May 3, 1869.

NAME.	RESIDENCE.	DATE OF ELECTION.
Osgood, Joseph B. F.,	Salem, Mass.	March 6, 1865.
Osgood, Nathan C.,	" "	June 4, 1894.
Osgood, Robert,	" "	Jan. 22, 1863.
Packard, Walter C.,	Salem, Mass.	April 16, 1894.
Page, Miss Anne L.,	Danvers, Mass.	Aug. 2, 1886.
Page, Dr. Charles W.,	Asylum Station, Mass.	Nov. 13, 1896.
Page, T. Nichols,	Salem, Mass.	June 18, 1894.
Paine, Everett,	Marblehead, Mass.	April 15, 1895.
Paine, Rev. George S.,	New York City.	Jan. 21, 1895.
Paine, Mrs. Ida U.,	Salem, Mass.	July 16, 1894.
Paine, Robert T.,	Boston, Mass.	Oct. 1, 1894.
Palfray, Charles W.,	Salem, Mass.	June 11, 1851.
Palmer, William H. H.,	" "	March 19, 1894.
Parker, Charles H.,	" "	April 3, 1893.
Parker, Charles W.,	Boston, Mass.	March 17, 1896.
Parker, William P.,	Salem, Mass.	Jan. 17, 1876.
Parsons, Joseph M.,	" "	April 30, 1894.
Parsons, William M.,	Gloucester, Mass.	Nov. 4, 1895.
Patten, Paul B.,	Salem, Mass.	July 16, 1894.
Payson, William E.,	" "	Oct. 19, 1896.
Peabody, Edwin N.,	Salem, Mass.	Oct. 1, 1894.
Peabody, Rev. Endicott,	Groton, Mass.	Oct. 21, 1895.
Peabody, Francis,	Danvers, Mass.	Sept. 4, 1894.
Peabody, George A.,	" "	Aug. 6, 1894.
Peabody, George L.,	Salem, Mass.	May 20, 1895.
Peabody, Henry W.,	" "	Aug. 25, 1864.
*Peabody, John E.,	Boston, Mass.	June 6, 1881.
Peabody, S. Endicott,	Salem, Mass.	April 8, 1857.
Peach, Dr. Harry R.,	" "	June 4, 1894.
Peach, Dr. Philip H.,	" "	Jan. 16, 1888.
Pearl, Joseph H.,	Bradford, Mass.	May 6, 1895.
Peck, Walter F.,	Salem, Mass.	July 2, 1894.
Peirce, Miss Annie S.,	" "	June 18, 1895.
Peirce, James M.,	Cambridge, Mass.	Jan. 21, 1895.
Peirson, Miss Abbie L.,	Danvers, Mass.	Sept. 17, 1894.
Peirson, Charles L.,	Boston, Mass.	Sept. 4, 1894.
Peirson, Dr. Edward L.,	Salem, Mass.	April 16, 1894.
Peirson, Mrs. Horatio P.,	" "	Oct. 1, 1894.
Pendar, Oliver S.,	Sioux Falls, S. D.	Oct. 21, 1895.
Pendar, Samuel D.,	Salem, Mass.	Jan. 4, 1892.
Percy, Dr. George E.,	" "	June 21, 1881.
Perkins, Miss Anna F.,	" "	July 16, 1894.

NAME.	RESIDENCE.	DATE OF ELECTION.
Perkins, Charles C.,	Salem, Mass.	March 15, 1897.
Perkins, Charles W.,	Peabody, Mass.	Aug. 19, 1895.
Perkins, Frank S.,	Salem, Mass.	April 30, 1894.
Perkins, Harry S.,	" "	June 4, 1894.
Perkins, John W.,	" "	Aug. 20, 1894.
Perkins, Nathaniel F.,	" "	April 18, 1898.
Perkins, Thomas,	" "	July 19, 1886.
Perley, Edward L.,	" "	June 4, 1894.
Perley, Sidney,	" "	Sept. 15, 1879.
Perry, Miss Lucy W.,	" "	July 2, 1894.
Peterson, Joseph N.,	" "	Nov. 16, 1891.
Pettengill, John W.,	Malden, Mass.	May 4, 1896.
Pevear, Henry A.,	Lynn, Mass.	April 15, 1895.
Pew, William A., jr.,	Salem, Mass.	May 7, 1894.
Phelps, James F.,	Lynn, Mass.	Sept. 26, 1896.
Philbrick, Miss Eliza,	Salem, Mass.	March 21, 1886.
Philbrick, Miss Helen,	" "	March 21, 1886.
Philbrick, Leroy B.,	" "	Aug. 21, 1893.
Phillips, Mrs. John C.,	Boston, Mass.	March 18, 1895.
Phippen, Arthur H.,	Salem, Mass.	June 4, 1894.
Phippen, Mrs. Arthur H.,	" "	Feb. 21, 1895.
Phippen, Charles E.,	" "	June 18, 1894.
Phippen, Dr. Hardy,	" "	May 7, 1894.
Phippen, J. Hardy,	" "	May 3, 1848.
Phippen, Joshua,	" "	May 21, 1877.
Pickering, George W.,	" "	Feb. 17, 1890.
Pickering, Henry,	Boston, Mass.	Aug. 20, 1894.
Pickering, John,	Salem, Mass.	Jan. 16, 1888.
Pickman, Dudley L.,	Boston, Mass.	July 16, 1894.
Pingree, David,	Salem, Mass.	Aug. 10, 1870.
Pingree, Mrs. Harriet E.,	Wenham, Mass.	March 18, 1895.
Pinnock, Thomas G.,	Salem, Mass.	June 18, 1894.
Poirier, Dr. Emile,	" "	Nov. 14, 1894.
Pomeroy, Miss Persis M.,	New York City.	June 16, 1890.
Pool, Wellington,	Wenham, Mass.	July 2, 1894.
Poole, Edmund A.,	Boston, Mass.	July 1, 1895.
*Poor, Alfred,	Salem, Mass.	Jan. 15, 1866.
Poor, Joseph H.,	" "	July 16, 1894.
Pope, Ira P.,	Danvers, Mass.	Nov. 5, 1894.
Porter, Alexander S.,	Boston, Mass.	Dec. 3, 1894.
Porter, Charles C.,	Salem, Mass.	March 21, 1898.
Porter, Frederick,	" "	Aug. 17, 1874.
Pousland, Mrs. Helen L.,	" "	March 18, 1895.

NAME.	RESIDENCE.	DATE OF ELECTION.
Prang, Louis,	Boston, Mass.	July 15, 1895.
Pratt, Henry J.,	Salem, Mass.	Feb. 27, 1874.
Preston, Charles H.,	Danvers, Mass.	April 15, 1889.
Preston, Frederick G.,	Peabody, Mass.	April 1, 1895.
Price, Charles H.,	Salem, Mass.	June 11, 1866.
Price, Joseph,	" "	May 7, 1894.
Prince, Edward,	Quincy, Ill.	Jan. 7, 1895.
Prince, John,	Essex, Mass.	March 4, 1895.
Proctor, Abel H.,	Salem, Mass.	July 16, 1894.
*Proctor, James H.,	Boston, Mass.	Feb. 1, 1897.
Puffer, Rev. Charles H.,	Salem, Mass.	April 2, 1894.
Pulsifer, William H.,	Newton Center, Mass.	Dec. 2, 1895.
Putnam, Charles A.,	Salem, Mass.	Nov. 8, 1855.
Putnam, Earl B.,	Philadelphia, Pa.	Jan. 21, 1895.
Putnam, Eben,	Danvers, Mass.	Feb. 18, 1889.
Putnam, Frederick W.,	Cambridge, Mass.	Nov. 8, 1855.
Putnam, George,	" "	March 18, 1895.
Putnam, George F.,	Boston, Mass.	April 30, 1894.
Putnam, George G.,	Salem, Mass.	Aug. 17, 1874.
Putnam, Mrs. M. Lowell,	Boston, Mass.	Oct. 7, 1895.
Putnam, Webster F.,	Danvers, Mass.	Feb. 21, 1898.
Pynchon, Rev. Thomas R.,	Hartford, Ct.	Dec. 2, 1895.
Quinn, Joseph F.,	Salem, Mass.	Aug. 20, 1894.
Randall, Edward H.,	Salem, Mass.	Sept. 17, 1894.
Rantoul, Augustus N.,	" "	Sept. 17, 1894.
Rantoul, Neal,	Boston, Mass.	Sept. 17, 1894.
Rantoul, Robert S.,	Salem, Mass.	Dec. 9, 1863.
Rantoul, William G.,	" "	Sept. 17, 1894.
Rea, Charles S.,	" "	July 6, 1864.
Read, Miss Abby L.,	" "	May 20, 1895.
Read, Charles W.,	" "	July 16, 1894.
Reith, William,	" "	May 1, 1893.
Remick, John A.,	Boston, Mass.	Sept. 2, 1895.
Remick, Timothy,	" "	Jan. 6, 1896.
Reynolds, John P.,	Salem, Mass.	Oct. 2, 1876.
Reynolds, Mrs. John P.,	" "	Feb. 7, 1898.
Rhoades, Charles C.,	" "	Sept. 17, 1894.
Rice, Henry G.,	" "	April 4, 1892.
Rice, N. W.,	Boston, Mass.	June 18, 1895.
Richardson, Frederick P.,	Salem, Mass.	June 21, 1881.
Richardson, Dr. Maurice H.,	Boston, Mass.	Sept. 4, 1894.
Ricker, Guy W.,	Salem, Mass.	July 2, 1894.

NAME.	RESIDENCE.	DATE OF ELECTION.
Robb, Mrs. Russell,	Concord, Mass.	July 2, 1894.
Robbins, Dr. Jesse,	Salem, Mass.	June 17, 1867.
Roberts, Miss Martha L.,	" "	Oct. 3, 1887.
Robinson, Edward,	Boston, Mass.	July 6, 1896.
Robinson, John,	Salem, Mass.	Dec. 18, 1861.
Robson, Matthew,	" "	April 14, 1873.
Rogers, Charles S.,	Salem, Mass.	July 16, 1894.
Rogers, Jacob C.,	Boston, Mass.	Sept. 4, 1894.
Rogers, Jacob C., 2d,	Salem, Mass.	Feb. 7, 1898.
Ropes, Albert G.,	New York City.	April 19, 1897.
Ropes, Charles F.,	Salem, Mass.	Feb. 7, 1898.
Ropes, Edward D.,	" "	March 21, 1898.
Ropes, Miss Emilie,	" "	Feb. 7, 1898.
Ropes, Miss Eliza O.,	" "	July 3, 1893.
Ropes, George F.,	" "	June 9, 1887.
Ropes, John B.,	" "	April 6, 1896.
Ropes, Miss Mary P.,	" "	July 3, 1893.
Ropes, Walter P.,	Brooklyn, N. Y.	April 19, 1897.
Ropes, William,	Poughkeepsie, N. Y.	Dec. 3, 1894.
Ropes, William H.,	Brooklyn, N. Y.	April 19, 1897.
Ropes, Rev. William L.,	Andover, Mass.	March 18, 1895
*Ropes, Willis H.,	Salem, Mass.	March 26, 1894.
Ruggles, Henry S.,	Wakefield, Mass.	Nov. 4, 1895.
Russell, Albert B.,	Salem, Mass.	April 30, 1894.
Russell, Mrs. Clara L.,	" "	Feb. 21, 1898.
Russell, Mrs. George G.,	" "	March 18, 1895.
Ryder, J. Orne,	" "	April 15, 1895.
Sabine, Mrs. Caroline R.,	Brookline, Mass.	July 15, 1895.
Safford, Daniel E.,	Hamilton, Mass.	Dec. 8, 1858.
Safford, William O.,	Salem, Mass.	Jan. 21, 1891.
Saltonstall, Philip L.,	Milton, Mass.	Feb. 18, 1895.
Sanborn, Nathan P.,	Marblehead, Mass.	Sept. 4, 1894.
Sanders, Nathaniel S. H.,	Danvers, Mass.	July 20, 1896.
Sanders, Thomas,	Haverhill, Mass.	July 2, 1894.
Sargeant, Cyrus,	Plymouth, N. H.	May 17, 1897.
Sargeant, Mrs. Cyrus,	Plymouth, N. H.	Feb. 21, 1898.
Sargent, Franklin H.,	Salem, Mass.	March 21, 1898.
Saunders, Miss Mary T.,	" "	Jan. 21, 1878.
Savory, Tristram T.,	" "	July 6, 1864.
Sayward, Charles A.,	Ipswich, Mass.	Aug. 20, 1894.
Sears, John H.,	Salem, Mass.	July 16, 1866.
Sears, Mrs. Lucinda C.,	" "	June 21, 1897.

NAME.	RESIDENCE.	DATE OF ELECTION.
Shattuck, George H.,	Salem, Mass.	March 21, 1898.
Shattuck, Mrs. George H.,	" "	March 19, 1894.
Shaw, Edward P.,	Newburyport, Mass.	March 18, 1895.
Shaw, Francis,	Wayland, Mass.	Feb. 18, 1895.
Shaw, Mrs. G. Howland,	Boston, Mass.	Feb. 18, 1895.
Shepard, George A.,	Salem, Mass.	June 9, 1887.
Shepard, Miss Sally W.,	" "	July 2, 1894.
Sherman, Edgar J.,	Lawrence, Mass.	Nov. 5, 1894.
Sherman, Dr. Sarah E.,	Salem, Mass.	May 7, 1894.
Sibley, George,	" "	Aug. 16, 1881.
Silsbee, George S.,	Boston, Mass.	Sept. 17, 1894.
Silver, William,	Salem, Mass.	April 30, 1894.
Sim, Arthur W.,	Peabody, Mass.	Dec. 3, 1894.
Sim, Francis D.,	" "	Feb. 21, 1898.
Simonds, Nathaniel G.,	Salem, Mass.	April 16, 1866.
Sistare, Mrs. Margaret G.,	New York City.	June 3, 1895.
Skinner, Mrs. Francis,	Boston, Mass.	March 4, 1895.
Sluman, Benjamin W.,	Salem, Mass.	May 6, 1895.
Small, Herbert,	Boston, Mass.	Aug. 20, 1894.
Smith, Alonzo H.,	Salem, Mass.	Sept. 4, 1894.
Smith, A. Augustus,	" "	Jan. 31, 1855.
Smith, Charles F.,	Boston, Mass.	May 4, 1896.
Smith, Edward A.,	Salem, Mass.	June 19, 1893.
Smith, Henry P.,	" "	Feb. 21, 1898.
Smith, Horace N.,	" "	July 18, 1887.
Smith, J. Foster,	" "	Nov. 16, 1891.
Smith, S. Frederick,	" "	July 2, 1894.
Smith, William M.,	" "	Jan. 7, 1895.
Smith, Winchester,	" "	April 16, 1894.
Sohier, William D.,	Boston, Mass.	April 21, 1896.
Sowdon, Arthur J. C.,	" "	Jan. 6, 1896.
Spencer, John E.,	Salem, Mass.	July 16, 1894.
Spinney, Benjamin F.,	Lynn, Mass.	April 15, 1895.
Spofford, Miss Aphia T.,	Groveland, Mass.	July 16, 1894.
Spofford, Paul N.,	New York City.	Aug. 20, 1894.
Sprague, Mrs. Elizabeth R.,	Boston, Mass.	March 4, 1895.
Stanley, John W.,	Salem, Mass.	Jan. 9, 1857.
Stanwood, James R.,	Portsmouth, N. H.	Sept. 16, 1895.
Starr, Miss Maria G.,	Salem, Mass.	Aug. 20, 1894.
Stearns, Henry S.,	" "	March 18, 1895.
Stearns, Richard H.,	Boston, Mass.	Jan. 7, 1895.
Stearns, Richard S.,	" "	July 15, 1895.
Stearns, William S.,	Salem, Mass.	Jan. 16, 1888.

NAME.	RESIDENCE.	DATE OF ELECTION.
Stickney, Miss Cornelia A.,	Salem, Mass.	July 1, 1895.
Stickney, George A. D.,	" "	July 16, 1894.
Stimpson, Thomas M.,	Peabody, Mass.	Feb. 1, 1854.
Stone, Arthur R.,	Salem, Mass.	June 8, 1885.
Stone, Owen B.,	" "	Jan. 16, 1888.
Stone, Mrs. Richard,	Boston, Mass.	March 17, 1896.
Storey, Moorfield,	Brookline, Mass.	May 6, 1895.
Streeter, Gilbert L.,	Salem, Mass.	July 18, 1849.
Sutton, William,	" "	March 21, 1898.
Swan, Dr. William D.,	Cambridge, Mass.	Jan. 4, 1897.
Swasey, William H.,	Newburyport, Mass.	July 16, 1894.
Symonds, Ernest F.,	Salem, Mass.	June 18, 1894.
Symonds, Stillman G.,	" "	March 19, 1894.
Symonds, Walter E.,	Lynn, Mass.	Feb. 18, 1895.
Tapley, Henry F.,	Lynn, Mass.	Feb. 4, 1895.
Temple, Arthur S.,	Salem, Mass.	May 7, 1894.
Tenney, Miss Martha J.,	Haverhill, Mass.	July 16, 1894.
Thayer, Edward S.,	Salem, Mass.	April 3, 1865.
Thayer, J. Henry,	Cambridge, Mass.	June 18, 1895.
Thayer, Oliver,	Salem, Mass.	Oct. 1, 1894.
Thompson, Elihu,	Swampscott, Mass.	April 30, 1894.
Thorndike, John L.,	Boston, Mass.	Feb. 17, 1896.
Thorndike, S. Lothrop,	Cambridge, Mass.	Sept. 14, 1894.
Tibbetts, Miss Emma A.,	Salem, Mass.	April 1, 1895.
Tierney, Patrick F.,	" "	May 7, 1894.
Tileston, Mrs. Mary W.,	Mattapan, Mass.	Dec. 17, 1894.
Titus, Alonzo F.,	Salem, Mass.	Feb. 21, 1898.
Todd, William C.,	Atkinson, N. H.	Dec. 17, 1894.
Touret, Benjamin A.,	Salem, Mass.	April 30, 1894.
Towle, Rev. Edward D.,	Brookline, Mass.	Sept. 18, 1893.
Tracy, Miss Louise,	New Haven, Ct.	Oct. 18, 1897.
Treat, John H.,	Lawrence, Mass.	Dec. 21, 1891.
Trefry, William D. T.,	Marblehead, Mass.	May 21, 1894.
Trumbull, Edward B.,	Salem, Mass.	July 16, 1894.
Trumbull, Walter H.,	" "	May 7, 1894.
Tuck, Joseph D.,	Beverly, Mass.	Dec. 18, 1861.
Tucker, Richard D.,	Salem, Mass.	July 2, 1894.
Tuckerman, Charles S.,	" "	April 30, 1894.
Turner, James H.,	" "	May 7, 1894.
Turner, Ross,	" "	Oct. 18, 1886.
Tuttle, Charles H.,	" "	May 6, 1895.
Tyler, Loren S.,	" "	Oct. 5, 1896.

NAME.	RESIDENCE.	DATE OF ELECTION.
Upham, William P.,	Newtonville, Mass.	Jan. 22, 1863.
Upton, Mrs. Annie M.,	Salem, Mass.	May 20, 1895.
Upton, King,	" "	May 7, 1894.
Vaughn, George C.,	Salem, Mass.	Oct. 1, 1894.
Vaughn, Ira,	" "	Dec. 16, 1895.
Very, George F.,	" "	Aug. 6, 1894.
Very, Nathaniel A.,	" "	June 12, 1867.
Very, Nathaniel T.,	" "	July 16, 1894.
Vickery, George A.,	" "	June 18, 1894.
Waldo, Miss Phebe M.,	Salem, Mass.	Jan. 15, 1893.
Walton, Eben N.,	" "	Feb. 28, 1898.
Ward, Miss Elizabeth C.,	Boston, Mass.	Nov. 8, 1897.
Ward, Frederick A.,	Salem, Mass.	April 30, 1894.
Ward, J. Langdon,	New York City.	April 30, 1894.
Ward, Samuel G.,	Washington, D. C.	March 4, 1895.
Wardwell, Henry,	Salem, Mass.	April 30, 1894.
Wardwell, Linville H.,	Beverly, Mass.	April 30, 1894.
Warner, Miss Annie L.,	Salem, Mass.	March 21, 1898.
Warner, Caleb H.,	Cambridge, Mass.	Sept. 17, 1894.
Washburn, Calvin R.,	Salem, Mass.	May 7, 1894.
Washburn, Dr. George H.,	Boston, Mass.	Feb. 17, 1896.
Waters, David P.,	Salem, Mass.	May 23, 1868.
Waters, Edward S.,	Holyoke, Mass.	Feb. 3, 1896
Waters, Henry F.,	London, Eng.	May 4, 1870.
Waters, Rev. T Frank,	Ipswich, Mass.	April 16, 1894.
Waters, William C., jr.,	Salem, Mass.	Jan. 16, 1893.
Webb, Arthur N.,	" "	April 30, 1894.
Webb, Dr. Benjamin,	" "	April 21, 1852.
Webb, Mrs. William G.,	" "	March 19, 1894.
Webber, William G.,	" "	Oct. 18, 1886.
Welch, Charles O.,	" "	July 3, 1893.
Welch, William L.,	" "	July 5, 1887.
West, Arthur W.,	" "	Jan. 19, 1880.
West, Miss Emma C.,	" "	Jan 17, 1898.
West, Miss Mary E.,	" "	March 2, 1874.
West, Mrs. William C.,	" "	July 16, 1894.
Westcott, Mrs. Stephen E.,	Boston, Mass.	Nov. 18, 1895.
Weston, Mrs. Charles H.,	Salem, Mass.	June 4, 1894.
*Wetmore, George P.,	Newport, R. I.	Oct. 15, 1894.
Wheatland, Mrs. Ann Maria,	Salem, Mass.	Oct 4, 1886.
Wheatland, Miss Elizabeth,	" "	March 15, 1869.

NAME.	RESIDENCE.	DATE OF ELECTION.
Wheatland, George, jr.,	Salem, Mass.	Feb. 7, 1898.
Wheatland, Richard,	" "	July 3. 1893.
Whipple, Albert I.,	" "	April 30, 1894.
Whipple, Everett,	" "	May 6, 1895.
*Whipple, George M.,	" "	June 7, 1854.
Whipple, Mrs. George M.,	" "	July 15, 1878.
Whipple, George N.,	Boston, Mass.	July 6, 1896.
Whipple, William H.,	Salem, Mass.	Nov. 14, 1856.
White, Alden P.,	" "	March 17, 1884.
White, George M.,	" "	Dec. 15, 1873.
White, McDonald E.,	" "	June 18, 1895.
Whitehead, Harry A.,	" "	July 16, 1894.
Whitehouse, Francis M.,	Chicago, Ill.,	Jan. 6, 1896.
Whitney, Mrs. Mary W.,	Lawrence, Mass.	Dec. 19, 1870.
Whitwell, Mrs. Mary C.,	Boston, Mass.	Nov. 19, 1894.
Wilkins, S. Herbert,	Salem, Mass.	Feb. 21, 1898.
Williams, George W.,	" "	April 30, 1894.
Williams, John S.,	" "	July 2, 1894.
Williams, Tucker D.,	" "	Nov. 19, 1894.
Willson, Miss Alice B.,	" "	April 6, 1896.
Willson, Miss Lucy B.,	" "	Jan. 21, 1895.
Willson, Robert W.,	Cambridge, Mass.	Aug. 20, 1894.
Wilson, Andrew J.,	Salem, Mass.	July 16, 1894.
Winchester, Frank,	Peabody, Mass.	April 15, 1895.
Wingate, Joseph C. A.,	Stratham, N. H.	Feb. 18, 1895.
Winn, John K.,	Key West, Fla.	Jan. 6, 1896.
*Winthrop, Robert C., jr.,	Boston, Mass.	Sept. 15, 1894.
Withington, Lothrop,	Newburyport, Mass.	Nov. 18, 1895.
Wolcott, Roger,	Boston, Mass.	Dec. 3, 1894.
Woodbury, Charles J. H.,	Lynn, Mass.	April 15, 1895.
Woodbury, Chas. Levi,	Boston, Mass.	April 15, 1895.
Woodbury, Mrs. David E.,	Gloucester, Mass.	July 2, 1894.
Woodbury, Dr. George E.,	Methuen, Mass.	Aug. 6, 1894.
Woodbury, Mrs. Harriette E.,	" "	March 21, 1898.
Woodbury, James A.,	Winchester, Mass.	Dec. 2, 1895.
Woodbury, John,	Lynn, Mass.	April 15, 1895.
Woodbury, John P.,	Boston, Mass.	Dec. 1, 1890.
Woodbury, Dr. Louis A.,	Groveland, Mass.	Aug. 19, 1895.
Wright, Carroll D.,	Washington, D. C.	Jan. 21, 1895.
Young, Charles L.,	Boston, Mass.	July 15, 1895.

CORRESPONDING MEMBERS.

Abbott, Henry Larcom, New York.
Adams, Herb't Baxter, Baltimore, Md.
Agassiz, Alexander, Cambridge.
Appleton, William Sumner, Boston.

Babbidge, Charles, Pepperell.
Battle, Rev. Kemp P., Chapel Hill, N. C.
Bean, Tarleton H., Washington, D. C.
Bell, Alexander Graham, Washington, D. C.
Bourse, Peter, Geneva, N. Y.
Brackett, C. F., Princeton, N. J.
Brewer, W. H., New Haven, Conn.
Brush, George J., New Haven, Conn.

Caldwell, Samuel L., Providence, R. I.
Cembrano, F. M., Manilla.
Chever, Sarah Ann, Melrose.
Chew, Samuel, Germantown, Pa.
Clark, Thomas M., Providence, R. I.
Collett, John, Indianapolis, Ind.
Coues, Elliott, Washington, D. C.
Cox, E. T., New Harmony, Ind.
Cresson, Ezra T., Philadelphia, Pa.
Crowell, E. Payson, Amherst.
Cummings, John, jr., Woburn.
Cutting, Hiram A., Lunenburg, Vt.

Dall, Wm. H., Washington, D. C.
Damon, Robert, Weymouth, Eng.
Davis, Henry, McGregor, Ia.
De Roax, William, Panama.
Downs, Andrew, Dutch Village.
Draper, Lyman C., Madison, Wis.

Edwards, Arthur M., New York.
Edwards, Richard.

Fewkes, J. Walter, Boston.

Gill, Theodore, Washington, D. C.
Goodale, George L., Cambridge.
Green, Samuel A., Boston.
Griscom, John, New York.
Guild, Reuben A., Providence, R. I.

Hall, Elihu, Athens, Ill.
Hanaford, Jeremiah L., Watertown.
Hart, Charles H., Philadelphia, Pa.
Hickox, John H., Washington, D. C.
Higginson, Thomas Wentworth, Cambridge.
Hoffman, W. J., Washington, D. C.
Hollenbush, H. W., Reading, Pa.
Holmes, Francis S., Charleston, S. C.
Huntington, Geo. C., Kelley's Id., O.
Hyatt, Alpheus, Cambridge.

Johnstone, Christoph., Baltimore, Md.

Kellogg, A., San Francisco, Cal.
Kilby, Wm. H., Boston.
Kilham, Rodney A., Temple, N. H.
Kimball, James P., Washington, D. C.
Kingman, Bradford, Bridgewater.

Latour, L. A. H., Montreal, Can.
Lea, Thomas G., Cincinnati, O.
Levette, George M., Indianapolis, Ind.
Lodge, Henry Cabot, Boston.
Lovett, Thomas D., Malden.

Marsh, O. C., New Haven, Conn.
Marshall, George W., London, Eng.
Minot, Charles Sedgwick, Boston.

Newberry, J. S., New York.
Niles, W. H., Cambridge.
Norwood, J. G., Columbia, Mo.

Oliver, James Edward, Ithaca, N. Y.
Ordway, Albert, Washington, D. C.
Osten-Sacken, R., St. Petersburg, R.

Packard, A. S., Providence, R. I.
Perkins, Augustine T., Boston.
Perkins, Charles P., Annapolis, Md.
Pickering, Edward Charles, Cambridge.
Playfair, Lyon, London, Eng.
Poey, F., Havana, Cuba.

Porter, Edward Griffin, Lexington.
Pumpelly, Raphael, Newport, R. I.

Richardson, E. S. L., Chicago, Ill.
Rockwood, Otis, Lynn.

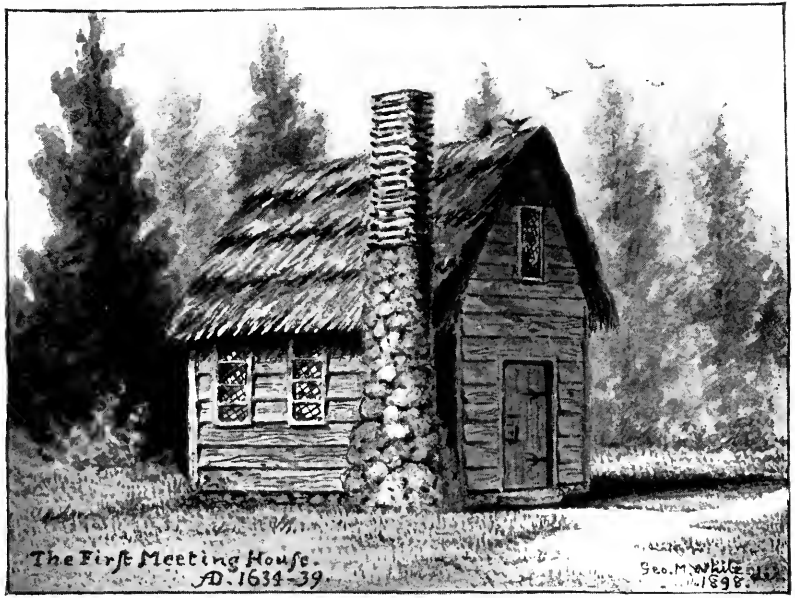
Samuelson, James, Liverpool, Eng.
Shaler, Nath'l S., Cambridge.
Sloan, John, New Albany, Ind.
Smith, J. Challenor, London, Eng.
Smith, S. I., New Haven, Conn.
Soares, John Da Costa, Mozambique.
Stone, Alfred, Providence, R. I.
Swallow, G. C., Columbia, Mo.

Talant, James, Concord, N. H.

Uhler, P. R., Baltimore, Md.
Upton, Winslow, Providence, R. I.

Verrill, Addison E., New Haven, Ct.

Wael, Emilien de, Antwerp.
Weinland, D. F., Frankfurt-a-Main.
White, C. A., Washington, D C.
White, William Orne, Brookline.
Whitmore, Wm. H., Boston.
Wilder, Burt G., Ithaca, N. Y.
Wildes, J. H., San Francisco, Cal.
Wright, Geo. Frederick, Oberlin, O.


The First Meeting House.
A.D. 1634-39.
Geo. M. Wilde
1898.

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 30. SALEM: JULY,—DECEMBER, 1898. NOS. 7–12.

ANNUAL MEETING, MAY 16, 1898.

THE annual meeting was held in Plummer Hall, this evening, at eight o'clock; the President in the chair.

In the absence of the Secretary, Mr. John Robinson was chosen Secretary *pro tempore*. The record of the last annual meeting was read and approved.

The President read a report of the work of the Institute for the previous year which follows in full. On motion of Mr. George M. Whipple, seconded by Vice-President Edward S. Morse, this report was accepted and ordered to be placed on file.

A report on the condition of the library from the Assistant Librarian, Miss Alice G. Waters, was read by Mr. Whipple and accepted and ordered to be placed on file.

The Treasurer read a report of the financial condition of the Institute, embodying suggestions of exceptional value. This, as well as the report of the Auditor which followed, was accepted and ordered to be placed on file.

It was voted to proceed to the election of officers for the ensuing year. Alderman Charles H. Danforth, Mr.

William Silver and Mr. Joseph Henderson, were appointed by the chair a committee to distribute ballots and to receive, sort and count votes.

This committee reported that eighty-three votes had been cast, all of which were for the following named persons:

PRESIDENT.

ROBERT S. RANTOUL.

VICE-PRESIDENTS.

Francis H. Appleton,	Edward S. Morse,
Abner C. Goodell,	Alden P. White.

SECRETARY.	TREASURER.
Henry M. Brooks.	William O. Chapman.

AUDITOR.	LIBRARIAN.
Henry M. Batchelder.	Miss Alice G. Waters.

COUNCIL.

George H. Allen,	Richard C. Manning,
John W. Buckham,	S. Endicott Peabody,
William H. Gove,	David Pingree,
Ezra D. Hines,	Charles S. Rea,
Francis H. Lee,	George M. Whipple.

FINANCE COMMITTEE.

The President, Chairman *ex officio*,

George H. Allen,	H. W. Peabody,
H. M. Batchelder,	David Pingree,
S. E. Peabody,	The Treasurer, *ex off.*

Upon which the President declared the above named persons to be elected and to be the officers of the Institute for the ensuing year.

Treasurer William O. Chapman offered the following resolution, which was unanimously adopted, and the Secretary *pro tempore* was directed to send a copy of it to the Secretary elect.

"At the annual meeting of the Essex Institute, May 16, 1898,

Resolved: That owing to the long-continued and painful illness of the Secretary, Mr. Henry M. Brooks, the Institute misses the presence of a faithful officer, and its members the company of a delightful friend.

It is therefore

Voted: That the sympathy of the members present be extended to Mr. Brooks, together with the sincere wish that the coming season will bring to him renewed health and strength."

President's Report, May 16, 1898.

This report should naturally begin with some notice of the irreparable loss we have sustained in the death of Mr. Hunt. The last meeting at which he was present was that of Monday, January 17, addressed by Captain John P. Reynolds. He wrote me next day regretting that, on account of a family engagement which he named, he had arrived at the meeting only in time to hear the general commendation the paper elicited. The last time we met was on Wednesday at dusk. It was a warm, damp night. His overcoat was flung lightly over his shoulders, the sleeves hanging loose, as was his wont. After talking in the street about Institute matters for a while we parted, and I saw him disappear up the broad, marble stairs of the Holyoke Building. He seemed well. That night he was stricken and he died on Friday. On Monday following, January 24, Professor Mendenhall was to address the Institute at Plummer Hall, and it was thought fitting that the occasion should be availed of to put on record and offer to the public some recognition of our loss as a Society and to provide for a memorial service which should give expression of our share in a grief felt to be spon-

taneous, profound and universal. Such action was taken and was generally noticed by the press. Measures were entered upon at once to this end, when it was found that other friends of Mr. Hunt, who felt that so well known a citizen should be commemorated by no one body, had already arranged a memorial service for the whole public at an early day and had secured so competent a eulogist as Dr. E. C. Bolles. Under these circumstances it seemed indelicate for the Institute to intervene. Dr. Bolles' address was delivered on April 14, and left nothing to be desired, and arrangements were at once made by the Institute to give it the first place in the forthcoming volume of our Historical Collections. It is now in print. The propriety of doing something more exclusively betokening the Institute's share in the general loss is under consideration, and it is contemplated to bring together into a chamber by themselves, so far as this can be done without unduly disturbing the natural classification of our books, Mr. Hunt's numerous and often costly gifts to our art and other collections, together with the unique and invaluable China Library collected by him and presented to the Institute; to call the room by the cherished name of the donor; to distinguish it with a tablet, and to dedicate it with some simple ceremonial in the coming autumn.

The year has been as disastrous in respect of our losses from sickness and death as it has been fortunate in other ways. Our admirable Librarian of the past twelve years is no longer here to read his yearly report, and our Secretary, who has served since the occupancy of the present rooms, has been unable from protracted illness to discharge his duties for many months.

Mr. Arthur Stone, the great value of whose varied services can be estimated only by those actively employed

at the Institute, has been disabled by illness throughout the year; Miss Arvedson, our experienced Assistant Librarian, was obliged from ill health to resign; and the able services of the Treasurer were interrupted by severe illness for several months. I am glad to be able to say that, with the addition of one new assistant and the very generous coöperation in office-work of the Treasurer since his recovery, and of Mr. George L. Peabody throughout the winter, a partial return to the old-time order of things has been reached; but it is seen by every active worker in the Society to be very far from what we desire or what our contributors and the public have a right to demand. Every day shows more plainly how far the Institute has outgrown its early methods.

The year has been fairly prolific of literary work. A new and much improved edition of the little hand-book to the first Meeting House was issued in the spring, and this was followed by an edition, the sixth or seventh I think, and the fortieth thousand, of the Visitor's Guide to Salem. This work has profited by the assiduous labors of at least ten devoted friends of the Institute, counting only writers and omitting artists, to several of whom credit is due for the copious illustration of the book. And while it has long compared well with the local guide-books of this section, it may at last be claimed to be in as good a condition as to accuracy and comprehensiveness and conciseness as we are likely at present to arrive at. It has been printed on 215 thin, flexible pages which, by adding four lines to each page, are made to contain some twenty-two pages more of matter than the preceding edition of 1895, although that edition numbered more pages, weighed more and was less flexible for pocket use. A good deal of new matter and several new illustrations were added, some errors corrected, and there would seem

to be little remaining to be done, aside from changes made necessary by current events, save to correct remaining errors of fact as they may come to light and to renew some of the cuts which are a good deal worn. Copies of both these guide books have been presented to the High and Grammar Schools of the city.

The regular publications of the Institute are well advanced. The Bulletin for 1895 has been completed, closing Volume XXVII and besides this we have added Volume XXVIII, to the Bulletin, completing the year 1896, which contains some scientific communications of exceptional value and a paper on Roger Williams in Salem, by the late Mrs. Henry M. Brooks, while the first half of the year 1897 containing the report of the yearly meeting, and the first half of the year 1898 containing the report of the Fiftieth Anniversary, are both printed and sent out. It remains to finish the year 1897 as soon as scientific material for the purpose shall come to hand, and the year 1898 as soon as the report of this present annual meeting can be sent to press. Thus we have done the work of two and one-half years since the last annual meeting in bringing the Bulletin so nearly up to date.

Pursuant to a vote passed at the last yearly meeting, the half-century anniversary of the Society was made the occasion of ceremonies which were exceptionally impressive, and of a gathering, from far and near, of persons interested in the Institute which, from its spirit and quality and size, gave the highest hope to those who see the great possibilities of our future and are willing to make sacrifices to secure it. The presence of the President of our leading University and of representatives of a large part of the kindred societies of this county and vicinity; of the official representatives of His Excellency, the

Governor of Massachusetts and of Her Majesty, the Queen of England, — contributed to make the gathering a memorable one, and the very cordial coöperation of our Salem community was not the least hopeful feature of the occasion.

It has been thought well to print in the current Bulletin for 1898 a full report of the Commemoration, together with a list of the present membership of the Institute, and to send this number out pretty freely to all who wish us well. Several magnificent offers of gifts to our collections were made on this occasion, which, if accepted, will mark a new departure in the career of the Institute.

Of the Historical Collections it is enough to say that a new volume has come out since the last meeting, which is, with the other issues alluded to, on the table for inspection, and which compares favorably with its predecessors. It brings the publication up to date. It contains, with other matters, a valuable contribution to the local history of Ipswich; some original Topsfield records of the 17th and the early 18th centuries; a sketch of our late Librarian; two accounts of Salem Neck and Winter Island, with a map; a statement of the grounds upon which rests the Essex County claim to the earliest attempt at cotton spinning and weaving,—an article reproduced with an illustration in the half-yearly issue of the New England Cotton Manufacturers' Association of April last; the story of Arnold's march through this County to Quebec; an unpublished letter of Col. Timothy Pickering and a list of shipping owned in Salem in 1826, with owners' names and other data, attributed to the late Joseph Augustus Peabody. In connection with the last it may be mentioned that several old hand-painted charts of the ships' signals used here toward the end of our romantic commercial era have been framed for better

preservation and display, and are a good deal consulted by descendants of the famous merchants whose signals they depict. The first half of the next volume for 1898, numbered Volume XXXIV, is in the hands of the printer and is nearly ready.

Two courses of lectures have been sustained throughout the winter, of the quality of which I need say nothing. Every Monday evening, from January third to April twenty-fifth inclusive, has been profitably and agreeably employed in listening to these varied productions, some of which have been printed. To the lecturers and speakers, as well as to the Peabody Academy of Science which has generously placed its hall at our service on several occasions, no well wisher of the Institute can fail to feel a sense of profound obligation. The Salem Lyceum pays a graceful tribute to the value of this work by making us its heir.

In August next, at the Institute's invitation, the American Association for the Advancement of Science will visit Salem. It has done so twice before. Like the Institute it has lived fifty years and the golden jubilee has been marked by its choice for president this year of one of the most distinguished sons of Salem, a protégé of Dr. Wheatland and long-time officer of the Institute. Great expectations are indulged as to this visit. A large local committee has been named and every Institute member will feel personally pledged for the success of the occasion.

Finally, it is worthy of note that two wills have been offered for probate this year in which the Institute has an interest. The first is that of George Plumer Smith, of Philadelphia, a member since 1882, when the Institute had no home but Plummer Hall, a constant visitor and correspondent, and a very active contributor in a variety

of ways. He has left a legacy of $10,000 to "the Plummer Hall in the City of Salem." This language does not describe with accuracy either of the corporate bodies which have from the outset enjoyed the joint occupancy of the building and for whose accommodation it seems to have been designed. It designates in terms by their corporate name neither the "Essex Institute" nor the "Proprietors of the Salem Athenæum," and we are advised that the case is one of those in which the courts, rather than allow the legacy to lapse for uncertainty and fall to a Pennsylvania Hospital, which is the residuary legatee, will hear evidence of a certain well-defined sort tending to show the purpose the testator had in view. Such evidence is in course of preparation — proper legal steps have been taken — and already more than one hundred and forty letters from the testator have come to light, all of them expressing the warmest interest in the Institute and its work, of which Mr. Smith was constantly availing himself for fourteen years. It is impossible to suppose that we shall not profit by the bounty of our friend.

The will of Mr. George L. Ames has also been filed, and while probate has not been finally allowed, and the condition of his estate is yet to be disclosed, it can hardly be that the Institute among other beneficiaries will not ultimately derive a very considerable advantage from the generous remembrance of Mr. Ames.

But the need of the Institute, as of most societies of the kind, is ready money rather than the expectation of future riches. The possibility of securing the Story, the Curwen, and other noble contributions, — of housing, cataloguing, arranging and utilizing the collections already ours, — of conducting our large correspondence, our prudential and other business affairs with reasonable vigor and efficiency, — depends on ready money; depends on

our receiving pretty promptly a considerable amount of pecuniary help. Future administrations of the Institute will be prepared to put the legacies which are to enrich them to the best of uses; but the present administration is wholly unable to see how the future which should be ours can be secured except through efforts made at once to increase our means, and to enlarge our space, and to add to our corps of paid assistants. Its present officers are ready to bear the burthen so far as they can, but what they can do is a fraction of what ought to be done. The work keeps steadily growing, and at times they find themselves so unequal to the demand that the day cannot be distant when they must be largely reinforced or the Institute must be content to accomplish less. If such a grand activity as ours is to be longer crippled for want of funds, let it not be said that this is because its officers have failed to make known their needs. It is fair to say that well-wishers of the Institute must not expect to see it thrive much longer as now equipped. It is fair to say that the amount of volunteer effort expended in the past two years in keeping the Institute up to its present standard cannot be relied upon much further unless there is a speedy prospect of substantial relief. Contributors who entrust us with valuable manuscripts and relics will not long be satisfied, when they ask to see their treasures, to be told that we have them safe somewhere but they cannot be found. The theological student, attracted to us by our rare collection of books of interest and value to the ministry, will not long be satisfied, when he demands the daily use of them, as did my late predecessor in the Chair, the Rev. Mr. Willson, to be told that they are amongst the numerous volumes boxed up and stored in a warehouse for utter lack of room. The Smithsonian Institution at Washington, for years of incalculable value

to us in spreading our publications by exchange about the world — making the name of Essex County almost as well known to-day as the commerce of our five good seaports did in earlier years—will not long be satisfied, when asking for a detailed report of our condition to be printed with the annals of the great societies of the country, to be told, as it was last year, that our clerical force is unequal to the task. The people of the County must either come promptly to the rescue or be content with a large curtailment of our working plans.

Library Report, May 16, 1898.

The additions to the Library for the year (May 1897 to May 1898) have been as follows:

By Donation.

Folios,	32
Quartos,	173
Octavos,	850
Twelvemos,	243
Sixteenmos,	152
Twenty-fourmos,	55
Total of bound volumes,	1,505
Pamphlets and serials,	4,119
Total of donations,	5,624

By Exchange.

Folios,	2
Quartos,	7
Octavos,	51
Twelvemos,	2
Total of bound volumes,	62
Pamphlets and serials,	1,367
Total of exchanges,	1,429

By Purchase.

Folios,	9
Quartos,	4
Octavos,	23
Total of bound volumes,	36
Pamphlets and serials,	34
Total of purchases,	70
Total of donations,	5,624
Total of exchanges,	1,429
Total of purchases,	70
Total of additions,	7,123

Of the total number of pamphlets and serials, 1,734 were pamphlets, and 3,752 were serials.

The donations to the library for the year have been received from 149 individuals and 112 societies and governmental departments.

The exchanges, from 14 individuals and 244 societies of which 121 are foreign; also from editors and publishers.

There is little to be said except to repeat that which the late librarian, Mr. Charles S. Osgood, has so well said in the years past, but in accordance with the usual custom the Assistant Librarian would, in addition to the statistics just read, respectfully submit the following:

The library would be greatly improved by the addition of a fire proof stack, for the better accommodation of the books, including those now stored outside of the building or piled up in out-of-the-way corners of Plummer Hall and the Institute Building.

A catalogue of the library is very much needed, not only to facilitate the work in the library, but also to furnish knowledge of the many rare and valuable books here collected for study and reference.

A book fund would be of the greatest assistance, to allow the purchase of new books and the rebinding of old books of value which are becoming damaged by constant usage.

A thorough examination of the library has been made, and but very few books are missing. Of those reported missing last year, five volumes and two pamphlets have been found and returned to their places.

Owing to the constant increase of the number of volumes of town histories and genealogies, and the general interest recently awakened in them, it has become necessary to remove the genealogies to the eastern reading room, where they have been arranged and labelled that they may readily be found by those not familiar with them.

This leaves shelf room in the western reading room for a better arrangement of the town histories, and for the completion of broken sets of the historical magazines.

The large number of those seeking reference to the directories, shows that this unique collection has a value not realized when Dr. Wheatland gathered them together and it is desirable that it should be made as complete as possible. Members are reminded that old directories of any city or town in the country are desired to increase this collection.

It is noticeable that many donations are received from persons in no way identified with the Institute, showing the extended and increasing interest in the Society and its work.

Respectfully submitted,

ALICE G. WATERS,

Assistant Librarian.

Treasurer's Report.

Condensed from Treasurer's Report presented May 16, 1898.

RECEIPTS.

Balance from last year's report,		$149 10
Received from invested funds,	$3,343 04	
Assessment of members,	2,463 00	
Publications,	919 05	
Contributions and sale of tickets for the celebration of fiftieth anniversary,	606 00	
Money borrowed,	500 00	
Mrs. Henry Saltonstall, contribution for framing Scagliola,	31 17	
From other sources,	177 99	$8,040 79
		$8,189 89

EXPENDITURES.

Salaries of secretary, assistants and janitor,	$2,259 05	
Shrubs, extra labor on grounds and building,	81 33	
Fuel,	206 75	
Light and water,	86 68	
Our proportion of the Athenæum expenses,	220 77	
Storage warehouse,	37 80	
Repairs on building, etc.,	177 78	
Postage and express,	135 45	
Supplies and miscellaneous,	99 10	
Lecture expenses,	70 00	
Reception expenses,	35 00	
Typewriter,	120 50	
Interest on loan,	224 43	
Insurance,	429 75	
Framing Scagliola,	31 17	
Annuities paid,	610 00	
Books, periodicals and binding,	394 44	
Publications and printing,	2,274 59	
Expenses incurred in celebration of fiftieth anniversary,	476 17	$7,970 76
Balance of cash on hand,		219 13
		$8,189 89

Respectfully submitted,

William O. Chapman, *Treasurer.*

An analysis of the figures shows that the expenses have exceeded the income by about $700, which does not differ materially from the average of the past eight years.

This is accounted for this year by the item of insurance, the large increase in the cost of printing caused by the bringing of the publications up to date and the issuing of new editions of the "Visitors' Guide to Salem" and "The Story of the First Meeting House." The cost of the latter two will however be returned to us in small amounts during the next few years. Now that the publications are up to date and the insurance has been distributed over a series of years, it seems as if we might run along within our income, if nothing beyond the usual routine work is attempted; such, for instance, as the much needed overhauling to make accessible the great mass of valuable manuscripts and papers of all kinds, which as yet remain almost an untilled field, doubtless containing material of untold value to the student of our earlier ways of life and people.

It has always been the policy of the Institute to take the broadest view of the situation and to do those things which seemed to be ultimately best for its interest, even at the cost of a present embarrassment for funds. This, the Treasurer believes, is the only way that the work should be continued and expects to see its brilliant past eclipsed by a more brilliant future.

We all realize of course that it takes money to run an institution of this kind, in such a manner; but let its present condition and prospects be a justification of this policy, and may they furnish encouragement to those who follow, to continue on the same broad lines mapped out by one lately lost who has done so much towards shaping its aims and purpose in years gone by.

This is not the place nor am I the person to pronounce any eulogy on the Institute's late friend and worker, Mr. Thomas F. Hunt; we all knew in a general way his deep interest in the affairs of this institution; some of us, who

were thrown in with him most, had the privilege of knowing more intimately his invaluable aid and counsel, and I desire to express in these few words, however inadequate they may seem, a deep sense of regret and a realization as time goes on of the irretrievable loss which the Institute has sustained in his decease.

There seems to be a feeling expressed by some that, while they continue to pay their dues regularly, they do not receive anything in return. This is a feeling that should not be allowed to exist and every member should be if possible made to feel that it is *his* Essex Institute whenever he wants to use it. They should be cordially received and courteously treated whenever their investigations bring them within the reach of our help and every effort should be made to assist them in obtaining any desired information.

It is the expressed wish and purpose of those who have the honor to be in charge of the Institute to extend its facilities to all members at all times. The interests of the Institute demand that this course be studiously pursued.

In view of the fact that members having friends visiting them have often asked if they might be allowed the privileges of the library, it has seemed best to have cards of invitation, for thirty days or less, issued to any friend introduced by a member; accordingly a circular was sent out May 2, over the Secretary's signature giving notice that the facilities of the Institute would be so extended.

In the absence of the Secretary, I take occasion to report that the responses to that notice already received seem to indicate the wisdom of the step. Even in the short time which has elapsed since May 2 the Assistant Librarian has issued enough cards to show that it is a privilege that will be used, and I am happy to say that

the applications are coming not only from Salem but from other parts of the County, thus showing that the Institute is in reality what it was chartered to be, a County Institution. Another matter which would claim the Secretary's attention, were he here, is the statistical showing for the past year. There have been 185 donations to the Cabinets from 83 donors, many of which are of rare and exceptional value.

Depending as we do largely on the assessment of the members and the contributions of our friends to defray the running expenses, it has seemed best to make some changes in the method of collecting the annual dues, and the very cordial response to the notification issued this year calling attention to the date on which the assessment is payable, seems to show that the new method is welcomed. While the assessment is a small amount for each member to contribute, it is the aggregate of the whole which pays the bills; and we have reason to think that, when each member realizes that the Institute needs *his* three dollars, we shall no longer have to borrow money temporarily to pay the running expenses. The more thoroughly business methods can be applied to the financial operations of the Institute the more satisfactory the results must prove to be.

Desiring to place the aims and purposes of the Society before those of the members not able for various reasons to visit the rooms frequently, we have mailed with the receipt for annual dues various circulars of information, hoping thus to keep up a feeling of personal interest. Earlier in the year the school teachers were supplied with copies of the "Visitors' Guide to Salem" and "The Story of the First Meeting House." That they have been read is proved by the extraordinarily large number of school children visiting the rooms and applying for the key to

the First Meeting House. As children under twelve are not admitted unless accompanied by an adult, it became necessary to call attention to that fact and we hope to see the teachers all come at the head of battalions of children interested to learn of Salem and its grand record. This is *part* of the liberal education, the great object lesson, which the Institute extends to all through its museum of historical relics and curiosities.

The attendance at the rooms during the past year has been as usual, large, and the Treasurer expresses his hope that in the near future an increase of income will warrant the opening of the building on Sunday afternoons. On the few occasions when the Institute has been open in the evening it has been thronged and we have been asked by strangers present if they could not be allowed to come in at some other time, thus showing a disposition to take advantage of the opportunities offered. This leads us to suppose that the opening of the rooms in the evening also might be of advantage to us and to the public. What the Institute needs besides more money, more room and more members, is the active interest and coöperation of the young people who would, we know, be attracted by the large, cheerful, airy rooms, quiet corners for work or study, valuable collection of relics, extensive library for reference or circulation, and the large supply of current magazine literature of the day.

There is one more thing which occurs to me to speak of, and that is the social side of the Institute in distinction from its scientific, historical, and literary features. We all perhaps agree, that in college life the social element is of great importance, even when the main object pursued is an education. So with this institution; while it furnishes a liberal education and object lesson, it seems to me that the social side should not be lost sight of. That this view appeals to others is shown by the increasing

attendance at the annual meetings, an occasion which might rightly be considered a purely business affair but which has become, for a Society of this kind, unique in its character through the efforts made to awaken an interest in the Institute's affairs. That this interest should be encouraged I have no doubt; but as to the way it should be done, and the extent to which it should be carried, there is *considerable* doubt. Personally, I should like to see the field meetings revived, beginning in a modest, informal sort of way to test the present feelings of the members on that subject, before launching out into the greater field which was formerly so well covered. I have in mind a most interesting visit to Bradford Academy some years ago, one of the last meetings, I think, ever held. A delightful afternoon spent at Hamilton last summer, although at a gathering of a different organization, emphasizes the fact that it is not necessary to go far from home for these meetings. Further than that, it is not even necessary to go off of the Institute's own grounds to seek enjoyment. What could be more enjoyable than a garden party right here under our own vine?

These are offered as suggestions, hoping that something will be developed from them, and that the Institute will once more be a recognized promoter of these meetings throughout the county.

Let us see to it that this interest is not allowed to flag or grow cool from any want of effort on our part. Though sadly crippled by what seems to be more than our share of the disabilities resulting from ill health, the work of the Institute has not *been* and must not *be* suffered to abate. Such troubles are but incidents in its career, — the gaps close up and the forward movement never falters.

WILLIAM O. CHAPMAN,
Treasurer.

Lectures and Meetings.

Monday Evening, August 16, 1897.— A meeting of the Directors was held at the rooms this evening at 8 o'clock. It was voted that the Institute invite the American Association for the Advancement of Science to visit Salem for a day, during its next meeting, which is to be held in Boston.

Monday Evening, Sept. 20, 1897.— A meeting of the Directors was held at the rooms this evening at 8 o'clock. The President stated that the President of the Topsfield Historical Society had proposed that the Institute join with them in a field meeting at Topsfield to which all the Historical Societies of the County be invited. On motion of General Appleton it was voted that the Institute take active measures to coöperate with the Topsfield Society.

Monday Evening, Oct. 4, 1897.— Attention was called to the death since the last yearly meeting of Charles S. Osgood, Librarian of the Institute from 1888 to 1897, and a tribute was offered by the President which will be found in the Historical Collections, Vol. XXXIII, p. 185.

Monday Evening, Jan. 3, 1898.— Regular meeting in the Library room. Mr. Gardner M. Jones, Librarian of the Salem Public Library, read a very interesting paper describing a recent tour among foreign libraries. Mr. Jones was a delegate to the international librarian's convention held in London, in June, 1897, and as such had special opportunities to study the methods of management in the large libraries of Europe. He spoke of the great libraries of Paris and London, and said that the rules governing them were more cumbersome than in this

country. After the lecture President Rantoul related some of his experiences while studying in European libraries. Professor Morse also made some interesting remarks on his visits to the great libraries of Europe. Both gentlemen agreed that, in the matter of privacy and the sense of seclusion while studying and making notes, the European system was superior to our own.

Monday Evening, Jan. 10, 1898.— The first lecture in the "free course" was given this evening, in Academy Hall, by Ernest A. Codman, M.D., of Boston. His subject was "the X-ray in Surgery and Medicine," illustrated by lantern views by George Newcomb. The President occupied the chair and said that electricity and lectures upon the subject were by no means new in Salem. As far back as 1771, Capt. David Mason, an ancestor of Alderman David Mason Little, at his home on North street, delivered lectures upon that newly discovered force, and when the Salem Lyceum commenced its course of lectures in 1828–9, Professor Page, a native of Salem, used in his lectures there what was then an elaborate and costly apparatus owned by Col. Francis Peabody. After the President's introductory remarks, he presented Dr. Codman, who spoke for an hour, showing and explaining the X-ray apparatus and the pictures upon the screen. The pictures showed plainly needles and bullets imbedded in the flesh, and fractures of the bones. A horseless carriage, propelled by an electric motor, brought a party with apparatus from the Thomson-Houston works at Lynn, and returned after the lecture.

Monday Evening, Jan. 17, 1898.— Regular meeting in the Library room. Capt. John P. Reynolds read a paper on the career of the Frigate Constitution. He said that Salem men had always been identified with the ship

and it devolved upon the Salem Light Infantry, sometimes called the Salem Zouaves, of the 8th Massachusetts Regiment in Major General Butler's command, to guard and defend the ship while grounded in the harbor of Annapolis, in 1861. He also stated that the ship was so well built and her timber so well seasoned, owing to delays in her construction, that some of the shots in her early contests failed to make any impression upon her sides, and for that reason she was afterwards known as "Old Ironsides." He gave her full history from the time of her launching in Boston, in October, 1797, down to the celebration of the one hundredth anniversary in Boston, in October, 1897. At the close of the talk the President upon request told the story of the time when she was chased into Marblehead Harbor on a Sunday afternoon, by a couple of English frigates during the war of 1812. He also told of the dinner tendered to Captain Bainbridge in Hamilton Hall by the Salem Light Infantry. A commodore's salute was fired from the miniature ship which was borrowed for the occasion from the East India Marine Society. Mr. John Robinson then said that it was presented by Commodore Hull and that there was among the old bills of the Academy one for twelve dollars for repairs on the model of the Constitution about that date. It is presumed the model was injured by the salute. The bill read:

East India Marine Society } Salem, May Dr.,
to English Prisoners of War }

1814 To repairing &c &c the Constitution $12.00.

Received payment for the above Prisoners.

June. THOMAS WEBB.

The Prison Ship then lay in the North river, off where the Universalist church now stands, then the site of the

sugar refinery of Mr. Brackley Rose. So the British prisoners of war repaired the damage and the model is still preserved at the Museum. The following letter is from the Museum files:

PORTSMOUTH 5TH. AUGUST 1813

SIR.

I have the honour to receive your letter of the 3d instant, covering a vote of thanks passed by the Salem East India Marine Society at a meeting held by them on the 7th July last, for a model of the Frigate Constitution which I had the pleasure of presenting them.

I beg leave, Sir, through you to return my thanks to the Society for this mark of their attention and for their polite invitation to visit the museum, which I shall with pleasure do when a convenient opportunity offers.

I am
With very great respect
Sir, Your Obt. Servant,
ISAAC HULL

WILLIAM LANDER ESQR.
SECRETARY OF THE SALEM
EAST INDIA MARINE SOCIETY.

Monday Evening, Jan. 24, 1898.—Prof. T. C. Mendenhall of Worcester, a member of the Highway Commission, lectured in Plummer Hall on the work being done by the Massachusetts Highway Commission. The President called the meeting to order and spoke feelingly of the great loss the Institute had sustained in the recent death of Mr. Thomas F. Hunt, one of its most valued and active members. Mr. Rantoul presented the following resolutions, prefaced with these remarks: It is impossible to go on with the work of the Institute to-night without a thought of Mr. Hunt. This is the first meeting since his death. No one, not cognizant of the inner workings of this organization, has an idea of the extent to which his spirit permeated everything. Early and late, the Institute was close to his great heart. In his death we have

suffered the most serious bereavement it was possible to sustain. Dr. Wheatland's withdrawal is the only occurrence in the past with which this disastrous event can be compared. It seems fit that some expression should be made, however inadequate, of our share in a grief that is spontaneous, profound and universal. The light and life that have gone out of this community leave an especial shadow on the Essex Institute. I ask you to consider this resolve.

Resolved: That the Essex Institute has no brighter page in her history than that just closed by the distressing loss of Thomas F. Hunt, and that the Board of Directors be and they are hereby requested to prepare for our records and to offer to the public, at a future day, some due memorial of a career so high, so honorable, and so distinguished.

The President then asked those present if they would indicate their approval of the resolution by a rising vote. Every person in the large audience arose.

Mr. Rantoul then introduced the speaker of the evening, Prof. T. C. Mendenhall, a member of the Massachusetts Highway Commission, who told of the work being done in Massachusetts and showed the various stages of road building with lantern views. He traced the development of roads from the narrow foot path when pack animals were used, and the wider path and rude bridges when the two-wheeled cart was invented, to the better roads required by the four-wheeled wagon carrying heavy freight. He spoke of the turnpikes owned by corporations, when a fixed rate was charged for a given number of miles. It is only a few years since the toll gate about a mile from this city was abolished. With the introduction of railroads, turnpikes fell into disuse and until a comparatively few years no effort was made to promote

good roads. The roads built by the Romans about 2000 years ago, some of which are in good condition yet, were built with a rock bed many feet deep, the surface perfectly flat, with no idea of drainage. Road makers of our day build high in the center, sloping both ways to carry off the water. The speaker said the best roads of modern times are those of France. They are well taken care of, the law requiring heavy wagons to have a six-inch tire and the hinder wheels running outside the track made by the forward wheels, so that a two foot strip of the road is rolled every time the wagon passes over it instead of being cut up by the narrow tires as is the case in our neighborhood. The Massachusetts highways are being constructed after the methods of Telford, an Englishman, and Macadam, a Scotchman, the former but little known, while macadamized roads are known everywhere. Telford used a substratum of broken stones of about four inches in diameter, while Macadam used only a two and a half inch diameter. A bed of six or eight inches of rock was laid after the ground had been prepared, then smaller stone with a layer almost like dust on top, which, when wet, cemented the whole into a compact body, being rolled by a steam roller weighing some ten or twelve tons. $500,000 are being expended by the State each year and bonds issued in payment. The speaker said issuing bonds has been stigmatized as feloniously putting the hand into the pocket of posterity, but that the State is building these roads to last fifty years or more so that posterity will have something for its money.

Monday Evening, Jan. 31, 1898.—The third lecture in the course was given this evening in Academy Hall by Miss Helen A. Brooks, a native of Salem, assisted by Miss Edith E. Torrey of the King's Chapel Choir, Boston.

Her subject was English and French Dance Music. She regretted that there was no means by which she could give us a sample of the music played by Orpheus, Apollo and others that we read of in mythology. It was at a considerably later date that the art of printing music upon paper and parchment was invented. She said that there had been found in London upon the cover of an old law book, printed at a time when paper and parchment were scarce and costly, and they had evidently destroyed one book in making another, the music of some dance then in fashion, and this she played showing the difference between the slow music of those days and the lively airs of the present time. About the year 1640 the minuet was introduced in France, and kings and queens, the courts and nobility of Europe were all obliged to study it. It was a very complicated measure involving some two hundred and twenty steps and every dancer must be perfect. In a dance called the Cushion Dance, the following dialogue was sung:—

The leader of the dance addressing the band master:

"This dance it can no farther go."

Whereupon the band master replied also in tune:

"I pray you, good sir, why say you so?"
"Because Joan Sanderson will not come too."
"She must come too and she shall come too."
"And she must come whether she will or no."
"Prinkum-Prankum is a fine dance,"
"And shall we go dance it once again,"
"And once again, and once again,"
"And shall we go dance it once again?"

and then the gallant knelt upon his cushion and the obdurate beauty was fain to yield.

The minuet was so fashionable, she said, that once the great Cardinal Richelieu, then the master intellect of

Europe, wishing to gain the favor of the young Empress Ann of Austria, was induced to don green doublet and crimson sash, decked out with bows and bells, and dance the minuet. When he discovered that the young Queen was making game of him, he was greatly enraged and never forgave the insult to his dignity. And many years later, when the Queen was no longer young, she felt his power when he laid a heavy hand upon her, thus avenging himself for the indignity of earlier years.

Saturday, Feb. 5, 1898.—A special meeting of the Directors and other members of the Institute was called this day to discuss plans for the coming fiftieth anniversary.

Monday Evening, Feb. 7, 1898.—Regular meeting in the Library room. Mr. Ross Turner spoke at length on "Mural Decoration." He had made a study of such work in most of the large cities of Europe and the result of his observations was clearly stated with blackboard illustrations. He said he hoped and believed that in the next half century America would witness the building of better public and private structures and a great development of art. At the conclusion Professor Morse spoke upon tile decorations and, with interesting drawings on the blackboard, described the art as known to the Moors and Italians.

Monday Evening, Feb. 14, 1898.—Rev. John W. Buckham of the Crombie Street Church, read a discriminating paper entitled "Some Famous Clergymen of old Salem." His list was quite a long one including some who were familiar figures on our streets within the recollection of many of his hearers. Among those mentioned were Brown Emerson, whose long pastorate of sixty-seven years

at the South Congregational Church, stands almost without parallel in parochial history; Dr. Samuel Worcester of the Tabernacle; Lucius Bolles of the First Baptist; Hosea Ballou of the Universalist Church, one of the foremost pulpit orators of the time; Dr. George B. Cheever of the Howard Street, or Branch Church, and Joseph Banvard of the Second Baptist, now called the Central Baptist. John Higginson, Hugh Peters, Nathaniel Fisher and William Bentley, were the four selected for special mention by Mr. Buckham. All of these men were distinguished, each in his own way; Dr. Bentley, perhaps, being the most unique figure of the four. Master of twenty languages, he was often called upon by the Government as an interpreter. He loved the sea and his favorite walk was down the Neck to Juniper Point and the Willows.

Saturday, Feb. 19, 1898.—An adjourned meeting of the Jubilee Committee was held this afternoon to make further arrangements for the celebration of the fiftieth anniversary.

Monday Evening, Feb. 21, 1898.—Regular meeting in the Library room. Edward C. Battis, Esq., read a carefully prepared and exhaustive record of the "Piracy of the Brig Mexican," of Salem, Captain Butman, owned by Mr. Joseph Peabody. This paper is in print in the Historical Collections, Vol. XXXIV, page 41.

The father of the lecturer, our venerable and respected townsman, Mr. John Battis, now eighty-four years of age, was an able seaman on board the Mexican and, after the lecture, gave a few personal reminiscences. Besides Mr. Battis, there are three other members of the crew still living. They are Capt. John R. Nichols of Salem, born Feb. 19, 1809; Capt. Thomas Fuller of Salem, born March 25, 1813, and John Larcom of Beverly, born Jan.

30, 1814. Mr. Battis completed his sea life upon the arrival of the Mexican home in 1832. A very severe rain prevented the attendance of Captain Fuller, Captain Nichols and Mr. Larcom, who were expected.

Monday Evening, Feb. 28, 1898.—Rev. George D. Latimer, of the North Unitarian Church, delivered an illustrated lecture on "Salem and the Salem Witchcraft." He gave an account of the settling of the town of Salem and traced the story of its growth to the time of the witchcraft delusion in 1692, in which the people of Boston and other places in the vicinity were involved. This ended with the execution in Salem of twenty victims. Mr. Latimer said that belief in witchcraft still exists in some parts of the world, mentioning the voodoo doctors among the negroes of the South, and the superstitions among the Bushmen, Zulus and Kaffirs.

Tuesday, March 1, 1898.—The Jubilee Celebration of the Essex Institute commenced this evening. A full account of it is printed in this volume of the Bulletin.

Wednesday, March 2, 1898.—The Jubilee Celebration was continued to-day with exercises in Cadet Armory which are fully reported in this volume.

Monday Evening, March 7, 1898.—Regular meeting in the Library room. Rev. Alfred P. Putnam of Salem spoke on the life and characteristics of Abiel Abbot Low.

Monday Evening, March 14, 1898.—Prof. C. Howard Walker of the Massachusetts Institute of Technology lectured on the "Evolution of the House." He spoke of the hut made of branches or built up of clay by primitive man and described the gradual change from the house built for defence to the beautiful residences of the present

time. He said that the round towers and conical roofs and the Boston bay windows seen to-day are patterned after the ancient Roman house. The round towers were so built as a means of better resisting the battering rams, and the projecting windows for hurling missiles at the besiegers.

Monday Evening, March 21, 1898.—Regular meeting in the Library room. Mr. C. J. H. Woodbury of Lynn spoke on the "Floating Bridge on Salem Turnpike." This paper is printed, with illustrations, in the Historical Collections, Vol. XXXIV, page 67.

Monday Evening, March 28, 1898.—Professor Edward S. Morse, Director of the Peabody Academy of Science, lectured this evening in Plummer Hall, on the question "Are there evidences of Asiatic contact with Central America?" The speaker has examined the mounds and shell-heaps both in Japan and in this country, and he has occasionally found in these remote regions two pieces of pottery resembling each other in perhaps one very slight particular, but entirely different in every other way. It is claimed that a small colony of Buddhist monks came from China to Central America, but none of the implements used by the Mongolians, such as chop sticks, thumb rings, roofing tiles, wheeled vehicles, ploughs, potter's wheels or stringed instruments of music were found: no graves bearing any characteristic evidence that any such emigration had ever taken place. He said that the strong ocean currents running from the coast of Japan to the coast of North America had brought Japanese junks to these shores (but no Chinese) as traces of the wrecks had been found in ancient and modern times. He also said that there were traces of resemblance between the Japanese and the North American Indian

and he thought that, if we went far enough back, we should find that the Indian was, as the high cheek bone and other characteristics seemed to indicate, of the Mongolian race, as it is certain he belongs neither to the White, the Negro nor the Malay.

Monday Evening, April 4, 1898. — Regular meeting in the Library room. Mr. John Robinson read a paper on coins and coinage. He spoke of the use in early days of shells and skins of animals for money, and later of the use of flocks and herds as a standard of value. The first coinage of New England was the Pine Tree Shilling in 1652, coined in Boston on the Gardner Green estate, now the site of the new Court House in Pemberton Square. He said that the Institute collection is a large and valuable one and submitted a catalogue of it which he had recently made. Discussion by the President and Professor Morse followed.

Monday Evening, April 11, 1898. — Dr. George A. Bates, of the Tufts College Medical School, lectured on "A chapter from the evolution of man." He showed by diagrams the development of the teeth from the reptiles and the lower animals to the teeth of man in the present time. He explained how the environment causes the teeth to assume new shapes, from the single, double or tri-cone teeth for holding and cutting the prey, to the broad, flat tooth for crushing and grinding the food. He said that these theories were brought to the notice of scientists from the fact that the tooth was the hardest bone in the human or animal body, and was always found in a good state of preservation after all the other bones were destroyed or softened by decay.

Saturday, April 16, 1898. — A meeting of the Board of Directors was held at the rooms this morn-

ing. A committee, consisting of the President, Vice-President White and the Treasurer, was appointed to report at an adjourned meeting of the Directors a ticket for officers to be voted on at the annual meeting.

The President and the Treasurer were made a committee to look after the interests of the Institute under the will of the late George Plumer Smith of Philadelphia.

The President, Vice-President White and Mr. Hines were constituted a committee to consider what action, if any, should be taken under the vote of the Institute on January 24, 1898, calling for a fit memorial of the late Mr. Hunt, to be spread upon the records of the Society, said committee to report at an adjourned meeting.

The thanks of the Institute were voted, and the President was requested to communicate them to Miss Elizabeth C. Osgood, and also to Miss Mary S. Cleveland, the Chairman of the Auxiliary Committee, and to the ladies of that committee, for their aid at the Jubilee.

Monday Evening, April 18, 1898. — Regular meeting in the Library rooms. Mr. Arthur H. Chase of Salem read a paper on the theme " Did Shakespeare write Shakespeare?" He said that it has been stated that Shakespeare was an illiterate man, and that although, in his day, a noted actor and theatrical manager, acting these plays in his own theatre, he could neither read nor write. Mr. Chase then asked why Bacon, if he were the author of these plays and sonnets, chose such an ignorant man to father them. Or why he should not give to the public under his own name the sonnets at least, if not the whole, as their merit was then recognized, and nothing like them has been written before or since. The paper was elaborate and scholarly. When Mr. Chase had concluded, Professor Morse took issue with the speaker and made a

strong argument in favor of Bacon, making the point that it was natural to suppose that the man who wrote Shakespeare's plays would have a very large correspondence, but it was a fact that no letter had ever been found addressed to William Shakespeare, nor any scrap of paper, save a signature or two, bearing his handwriting. Dr. Merriam also made some remarks in support of Mr. Chase's position.

April 23, 1898. — An adjourned meeting of the Board of Directors was held at the Institute rooms today. The committee, to whom was referred the matter of a memorial service to the memory of Mr. T. F. Hunt, reported that they were considering the setting apart of a room in the building to contain the books given by Mr. Hunt, and to be known as the "Hunt Room," and suggested the autumn as a suitable time for the dedicatory services. Mr. Morse suggested that a tablet to the memory of Mr. Hunt be placed in the room.

The committee on nominations reported that, owing to the serious illness of the Secretary, it was not deemed advisable to consider any nomination to fill the position. That Miss Alice G. Waters be nominated Librarian to fill the vacancy caused by the death of Librarian Charles S. Osgood. The finance committee was proposed to be the same as last year. The nominating committee was given further time at its request.

Monday Evening, April 25, 1898. — The last lecture of the free course was given in Academy Hall this evening by John Woodbury, Esq., of Boston, Secretary of the Massachusetts Park Commission. His subject was "The Metropolitan Park System." In introducing the speaker President Rantoul said that he was a lineal descendant of

John Woodbury, one of the first band of settlers of this part of the country, who came from Gloucester in 1626. Mr. Woodbury prefaced his remarks by a brief history of the work in the legislature of 1893, resulting in the passage of a law incorporating the Metropolitan Park Commission. The lecture was illustrated by Mr. George Newcomb with lantern slides, the first of which was a circular map with the State House as the centre, and the various roads radiating out, or, as the speaker expressed it, "The Hub of the Universe." The arc of the circle was twelve miles from its centre, and embraced the Stony Brook Reservation, the Blue Hill District, Middlesex Fells, Lynn Woods and Revere Beach.

Necrology of Members.

George L., son of C. Martin and Mary (Smith) Ames, was born in Salem, Nov. 26, 1829; elected a member of the Essex Institute, Dec. 2, 1857 and died in Salem, March 28, 1898.

Frances E. (Mrs. John J.) Bagley, daughter of Samuel and Mary A. (Sergeant) Newbury, was born in Rutland, Ohio, March 4, 1833; elected a member of the Essex Institute, April 1, 1895 and died at Colorado Springs, Feb. 7, 1898.

George W., son of Samuel and Sarah M. (Prentiss) Benson, was born in Salem, Sept. 25, 1835; elected a member of the Essex Institute, Dec. 20, 1875 and died in Salem, March 4, 1898.

Israel Putnam, son of Daniel and Elizabeth (Dodge) Harris, was born in Danvers, Feb. 26, 1825; elected a member of the Essex Institute, May 23, 1860 and died in Hamilton, Sept. 9, 1897.

Thomas Franklin, son of Thomas and Elizabeth Cook (Keen) Hunt, was born in Salem, July 15, 1841; elected a member of the Essex Institute, May 1, 1865 and died in Salem, Jan. 21, 1898.

John A., son of Bailey and Sally P. (Osgood) Loring, was born in North Andover, Aug. 16, 1824; elected a member of the Essex Institute, Jan. 21, 1895 and died in Boston, Feb. 11, 1898.

Nathan R., son of Nathaniel and Jane (Robb) Morse, was born in Stoddard, N. H., Jan. 5, 1831; elected a member of the Essex Institute, Oct. 15, 1866 and died in Salem, Aug. 5, 1897.

Charles S., son of Charles and Susan (Ward) Osgood, was born in Salem, March 13, 1839; elected a member of the Essex Institute, July 1, 1863 and died in Salem, Aug. 20, 1897.

Caroline (Mrs. William D.) Pickman, daughter of Zachariah F. and Sarah (Boardman) Silsbee, was born in Salem, Aug. 24, 1819; elected a member of the Essex Institute, Sept. 4, 1894 and died in Boston, Feb. 22, 1898.

Charles C., son of Frederick and Augusta M. (Bray) Porter, was born in Salem, March 13, 1868; elected a member of the Essex Institute, March 21, 1898 and died in Salem, May 9, 1898.

J. Augusta (Mrs. William G.) Prescott, daughter of Joseph A. and Louisa (Putnam) Peabody, was born in Salem, June 12, 1828; elected a member of the Essex Institute, Feb. 4, 1895 and died at Colorado Springs, Nov. 29, 1897.

Joseph, son of Timothy and Sarah (Holmes) Ropes, was born in Salem, Nov. 11, 1812; elected a member of the Essex Institute, Feb. 6, 1888 and died in Salem, March 21, 1898.

George Plumer, son of James and Mary (Plumer) Smith, was born in Robbstown (now West Newton), Penn., May 22, 1815; elected a member of the Essex Institute, Feb. 6, 1882 and died in Philadelphia, Feb. 13, 1898.

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Iowa Churchman.
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