NEW-YORK TRIBUNE.

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NEW-YORK DAILY TRIBUNE.

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NEW-YORK TRIBUNE.

☞ We trust Mr. Barnum's liberal offer of $200 for a Song to be sung by JENNY LIND on her first appearance in America, is destined to form an era in a valuable though lightly esteemed department of Literary effort. The following from one who has done American Literature good service in another department we hold as the first-fruits of that offer:

THE BANNER, THE SAINT AND THE SONG.

A NATIONAL ODE,

☞ To be sung by Jenny Lind (if she likes it.)

I.

OH COME, let us choose for our country to-night
A Banner, a guardian Saint and a Song;
Give care to the winds, for the spirit is light
When patriots join in the chorus strong.
Fill, fill up the glass,
Round, round let it pass!
We speak not of blood and slaughter;
'T is the song of the Free,
And this hath a glee,
Tho' you drink it in plain cold water.

II.

Our *Banner!* Come tell us, say what shall it be?
But the flag that waves fair o'er the land of the brave?
For its stars shine down as from Heaven, you see
O'er the stripes which are blent like the land and the wave!
Fill, fill up the glass,
Round, round let it pass!
We speak not of blood and slaughter;
'T is the song of the Free,
And this hath a glee,
Tho' you drink it in pure cold water.

III.

Our *Saint?* Let us ask of the world for his name,
And WASHINGTON echoes from earth and from sky;
Oh, shade of the mighty! be ever the same—
Our shield here below—our guardian on high!
Fill, fill up the glass—
Nay, nay—let it pass,
We speak not of blood and slaughter;
T is for one above,
Whom the Nations love,
Too holy for wine or water!

IV.

The *Song?* Shall it be but of battle a chorus,
With echo of trumpet and bugle ringing?
Keep these for the pageant—the Fair are before us,
And the Angels will list when of them we are singing.
Fill, fill up the glass—
Oh, no!—let it pass,
We sing not of blood and slaughter;
We melt in the trance
Of woman's bright glance,
And think not of wine or water!

V.

And the Song of the Free—shall it have not a stave
For the far-away pilgrims of Freedom and Truth—
For the noble in chains and in battle the brave?
Need I whisper his name?—What else but KOSSUTH?
Fill, fill up the glass—
No, no—let it pass,
We speak now of blood and slaughter;
The vulture is feeding
While his heart is bleeding—
Away with the wine and the water!

VI.

America, speak—and the Angels will ring it!
Cry shame on the cowards that hold him in chains!
Give him Liberty—Life—and long ages will ring it
'Mid thy triumphs of glory in echoing strains!
Fill, fill up the glass,
Round, round let it pass,
We speak not of blood and slaughter;
The Hero shall meet us,
Here, here shall he greet us—
Let us pledge him in bright, cold water.
S. G. G.

SCIENTIFIC CONVENTION.

AT NEW-HAVEN.

American Association for the Advancement of Science.

[Reported for The Tribune.]

FOURTH DAY....NEW-HAVEN, Thursday, August 22.

There was nothing of particular interest at the general session of this morning. The subdivision into sections took place at an early hour, and here a large amount of business was transacted. In the section of Chemistry, a communication was made by Prof. HORSFORD, on the "*Relation of the Chemical Constitution of Bodies to Taste.*" Early in 1848, Prof. H. presented to the American Academy of Arts and Sciences, several formulæ in relation to the query, is the similar taste of the sweet bodies glycocall, grape sugar, sugar of lead, and two-thirds oxide of glycocall, dependent upon a similar arrangement of their minutest particles? The Professor demonstrated that the taste is not dependent upon any one of the elements present, since each may be entirely replaced by another without destroying the taste.

The inquiry naturally arises, Have sour bodies a common form, to which and not to the nature of the constituted particles the property of sourness is to be attributed. The acids are composed of one larger atom or group of atoms, united to the least atom, Hydrogen; bound to the group by an affinity apparently much fuller than that of any of the remaining elements. The alkaloids have a general form in common with the resins soluble in water; and their bitterness, it may be conceived, is coupled with this peculiarity of constitution. The practical application of these speculations has not yet in the hands of Prof. H. succeeded in bringing about a stable combination with a resin, though he is far from having given up the expectation of the artificial production of alkaloids according to these views; and it is his purpose to prosecute experimentally this branch of the inquiry in the interval between the present and the next annual meeting of the Association.

AMMONIA IN THE GENERAL ATMOSPHERE.

Dr. C. T. JACKSON read a communication from Dr. A. A. HAYES, on the assumed existence of Ammonia in the general atmosphere. The object of this paper was to show that Ammonia is not found to be a general constituent of the Atmosphere, but that the Ammonia found by chemical analysis of the air near the surface of the earth is derived from an organic substance discovered by Zimmerman, and called by him Pyrrhine. To this substance, which exists universally in rain and snow water, Dr. Hayes attributes the fertilizing effects of snow, rain, and the water contained in arable soils. He adduced instances of very rapid vegetation as produced by the formation of Pyrrhine in fermenting mold.

Dr. Hayes regards ammonia as being a poison to plants, though he attaches great value to it as a neutralizing agent to acids of soils and as serving to convey other ingredients, such as carbonic acid and the organic acids of soils, into the circulation of plants.

Dr. Jackson sustained the views of Dr. Hayes as to the state of Ammonia producing substances in the air.

Mr. JONATHAN B. BUNCE, of the Yale Laboratory, presented a communication, of which the following is an abstract:

THE ASHES OF ANTHRACITE COAL

Coal, now so common an article of fuel in all our cities, leaves but a small quantity of ashes, yet when we take into account the number of tuns consumed in a single year this amount becomes very considerable; hence, it becomes a matter of interest to know whether it can be considered of economical value. With this purpose in view, two samples of coal were selected, the white and red ash varieties, and the quantities soluble both in water and acid determined with the following results, viz:

White ash in water	3.74	Red ash in water	3.35
White ash in acid	17.07	Red ash in acid	18.65

The following analysis is the mean of two determinations of the portion soluble in acid:

	White ash variety.	Red ash.		White ash variety.	Red ash
Soluble silica	.796	8.621	Soda	1.933	1.148
Alumina	35.201	29.575	Potash	1.443	.732
Iron	29.643	40.614	Phosphoric acid	1.786	1.880
Lime	18.655	1.108	Sulphuric acid	8.164	3.010
Magnesia	1.750	13.992	Chlorine	.087	.013
			Total	99.448	100.691

The results obtained in these two analyses seem to justify the extensive use of coal ashes for agricultural purposes; they are very valuable on account of the sulphates of lime and magnesia which they contain, and also from the phosphoric acid and alkalies. Hundreds of tuns which are now wasted might thus be brought into use.

Mr. P. S. HUNT read a paper by Prof. SCHAEFFER of Kentucky, on the subject of a

NEW TEST FOR THE NITRATES.

Mr. Schaeffer's process consists in adding to the solution supposed to contain nitrates one or two drops of yellow prussiate of Potash. These should not be enough to give a perceptible tinge to the liquid—a few drops of acetic acid are then to be added, and immediately or in a few minutes, according to the quantity of nitrite present, the liquid assumes a rich yellow tint.

Mr. WM. P. BLAKE of New-Haven, read a paper on

ARTIFICIAL CRYSTALS OF LESQUI OXIDE OF CHROMIUM, Cr_2O_3.

Mr. B showed to the Association several specimens of crystallized oxide of chromium of great beauty. They were formed in a reverberatory furnace long used to manufacture chromate of potash from chrome, iron ore. The crystals were small, of a deep emerald green color, and in hardness, next below the diamond. Mr. B. considers their formation due to the infiltration among the bricks, of the fused chromate of potash—and the subsequent solutiligation of the potash, by long continued and uniform heat, and the reduction of the chromic acid to Lesqui oxide of chromium.

The time in the Mathematical Section was occupied with discussions apparently much more interesting to the speakers than to the audience. Indeed, the contrast between the zeal of the Professors and the listlessness of the victims on the benches possessed all the elements of Blair's definition of the ludicrous. Some interesting titles were on the programme, as "A Remark of La Place, respecting the Moon," treated by Prof. Olmsted; "Notice of a powerful Magnet," by Prof. B. Silliman, Jr.; "The Theory of the Solar Spots," by Prof. H. D. Rogers. These, however, were put aside on account of the length of articles on "Galvanic Wave Time," "Lunar Distances," &c. The meeting concluded with an active discussion of Prof. Mitchell's proposed method of registering R. A. and N. P. distances. Prof. Peirce of Cambridge presented a report which seemed to show the method to be neither new nor useful. Prof. Mitchell responded with some vehemence.

In the Section of Geology and Natural History, Prof. C. B. ADAMS read a paper on the "Value of shells of Mollusca as furnishing distinctive characters," followed by remarks from Prof. AGASSIZ, confirmatory of the importance of shells, but suggesting more attention to the connection between the living animal and the shell.

Dr. C. T. JACKSON read a paper on "Ancient Pot-Holes in Rocks." Prof. AGASSIZ remarked that the Glacial theory was not contrary to the formation of Pot-Holes. Prof. HUBBARD made some remarks on the region of country alluded to by Dr. Jackson, indicating depression of the levels of the country. Mr. OSBORN of Albany described the Pot-Holes of Little Falls, N. Y., with the depression of level of the Mohawk River.

Dr. BURNETT of Boston, read a paper prepared by Prof. GEO. C. SHAEFFER, on "Fossil Coniferous wood from the Devonian strata of Lebanon, Marion Co. Ky." Prof. AGASSIZ made some observations on the "Relation between coloration and structure in the higher Animals." The morning wound up with an interesting paper on the Paconic System, by Mr. T. S. HUNT, of the Canada Geological Commission.

In the afternoon, the Association met in general session. Papers were presented by Mr. C. C. JEWETT on a new Plan of taking catalogues of libraries, to which I must take another occasion to refer at length; by Mr. B. A. GOULD on the Galvanic wave; and others by Prof. AGASSIZ and LOOMIS. An interesting statement of the proceedings at the Charleston meeting, with some suggestions for improvements in the government of the Association, were presented very forcibly by the President, Prof. BACHE.

The following is the communication made by Prof. BACHE, Superintendent of the Coast Survey, in relation to the

METHOD USED IN THE COAST SURVEY OF SHOWING THE RESULTS OF CURRENT OBSERVATIONS.

This method, while it is original, may not be new, (observed Prof. Bache) though he was not aware that the system has been followed by others. It has some analogies with the representations of Berghaus; but is different essentially from them. The principle and an application to the very elaborate current observations made in Boston Harbor under the immediate direction of Lieut. Chas. H. Davis, by Lieut. J. H. Maffit, were shown in the diagrams presented to the Association in illustration of the present paper.

Observations of the direction and velocity of the Currents at and below the surface have been extensively introduced into the hydrography of the Coast Survey; their importance needs no remark. The most of the details of arrangement and suggestion in regard to the earlier observations are due mainly to the late Lieut. Geo. M. Bache, U. S. N. For much of the success of execution, Prof. Bache also acknowledged his indebtedness to Lieuts. Davis and Patterson.—For Currents below the surface, there is still wanted some sure and easy method of determining both direction and velocity—especially the latter elements.

Observations being multiplied at different periods of the current, from slackwater to slackwater, they are projected upon diagrams showing at a glance the direction and velocity at any particular station. The average of the results is usually obtained by inspection. Dividing the intervals between slackwaters into quarters, we give the mean results for those periods in a table, and place usually upon the chart arrows indicating the direction or set, and write at the extremity, numbers showing the velocity or rate in miles per hour. In case of the observations made in Boston Harbor, the results were so unusually numerous that the lines of direction were confusing to the eye and the connection between the results was very difficult to seize. Through the pains taken, the motion of the water was traceable in nearly all its peculiarities, from the entrance through the tortuous passages among the islands, alternately narrowing and expanding, to the city wharves.

On the Current chart exhibited by Prof. Bache, the direction and force of the currents were represented by lines, the distance between which is inversely as the rate in miles per hour. The reciprocals of the number of miles per hour are here represented by tenths of inches—currents of 0 2, 0 5, 1, 1.5, 2 miles per hour being represented by lines parallel to their directions, and distant 0 5, 0 2, 0 1, 0.75, 0.05 of the inch. The chart was on a scale of 1-20,000. The representation on one of the diagrams corresponded to the flood and in the other to the ebb, referring to the motions of the current from slackwater to slackwater, and not to the tide or rise and fall of the water. If the current stations were very numerous, the straight lines tangent to the curves of motion of the water (set of the current) would become curves. It is easy for the navigator to seize the relations of the currents he will meet, even by these tangent lines, to avail himself of the knowledge thus imparted of the direction-ral and eddy currents to avoid danger or to secure advantage.

The cause of the change of directions and velocities is in most cases well marked, the generalizations presented to the eye, being connected with the form and position of the land above or below the water. In some cases the chart indicates that the observations should be uprooted, and in others, that numerous as the stations are, they should be still increased in number. Its adoption will probably thus react to improve the observations upon which it is founded.

—I annex a full abstract of the interesting paper read by Prof. E. N. HORSFORD of Cambridge, upon

AMMONIA IN THE AIR.

The source of nitrogen in plants has been ascribed to the ammonia of the atmosphere brought down for the most part by rain-falls; retained in the soil by virtue of its porosity and its moisture, and thus supplied to the subterranean absorbents of plants. To some extent, it has doubtless been supplied through the foliage from the same great source. The determination by Kroker of the amounts of ammonia in soils from various localities, uncultivated as well as cultivated and manured, showed the abundant supply of this body in the earth. Nevertheless the determinations of the ammonia in the air, whence it was conceived the stores in the soil must be derived, have uniformly yielded too little to satisfy the demand which the larger drafts for grain crops have made. The qualitative detection of ammonia in the air has been made by Schule, De Saussure, Coloro de Martigue, Faraday, U. Zimmermann Brandes, Chevalier and Liebig.

A block of ice from the foot of the glacier de Boisson, Chamouni, and which, according to Murray, is one of the termini of the Mers de Glace; when melted, gave 8½ litres of water, and 0.0177 grains of ammonia—or about 2 1 000 000 of the weight of the ice was ammonia. The determination of Fraezer gave for one million grammes of air, 0.323 of ammonia. That of hemp for an equal volume of air, 3.68 gr. of ammonia. Fresenius found in an equal volume, by day 0.098 gr. of ammonia, and by night 0.169 gr. of ammonia.—The method pursued by Graeger and Fresenius was the same. With the aid of an aspirator they transmitted large volumes of atmospheric air through dilute hydrochloric acid, and evaporated the solution, to which bichloride of platinum had been added, to dryness, determining the ammonia in the usual manner. [Prof. Horsford here proceeded to detail the processes of Fresenius and some improvements of his own with diagrams.] The chief conclusions to which the determinations of the ammonia in rain water and snow directed attention were the following:

That an equal weight of snow-water contains more ammonia.

That the quantity brought down by the snow, compared with that in the space from which the snow fell, is exceedingly small.

A number of tables were given by Prof. Horsford in demonstration of the results obtained—one of which is here inserted:

TABLE showing the Varieties in the Quantity of Ammonia in the Air:

Date 1849.	*In 1 Metre.*	*Date* 1850.	*In 1 Metre.*
July 3	40 36	Jan. 15	23 10
" 9	55 65	" 30	9 22
Sept. 1-20	29.79	Feb. 15	7.72
Oct 11	28.34	March 1	13.47
" 14	25.85	" 15, 16	11.10
" 30	13 89	" 30	8 55
Nov. 6	6 78	April 15	23.77
" 10, 12, 13	7 16	" 29 30	16 18
Dec. 17	6 25	May 14, 15	12 67
" 20, 21	7 11	June 6	4 43
" 29	2 45	" 17, 20, 21	7.88
		" 22	36 43
		" 29	9 83
		July 5	4 19
		" 10	2 29
		" 15	12 36

The following are the conclusions from the results: 1st, The quantity of Ammonia on the air is variable. 2d, There is more apparently as a general statement in the air of a south-west wind. 3d, The quantity is augmented by animal and vegetable decompositions. 4th, As the moisture was ascertained last year to be greatest during a south-west wind, there would seem to be connection between the exhalation of moisture and that of ammonia from the soil.

—I have full notes of other interesting communications which have been made to the different Sections of the Association, but must leave them for another day. This evening, the President of last year, Prof. Henry, is to deliver the Annual Address. M.

FIFTH DAY....NEW-HAVEN, Friday, August 23

I have the pleasure of announcing, that at the opening of the General Session of this morning, acting in accordance with the recommendation of the Standing Committee, the Association resolved to hold its next annual meeting *in the City of Albany*, on the third Monday of August, 1851. This determination of the Convention will be a cause of universal congratulation in our State, and the attendance can scarcely fail to be very largely increased. The intermediate semi-annual session will be held at Cincinnati on the first Monday of May next.

Two additional Committees were appointed this morning on two important subjects, viz:

On the Magnetic Observations of the Toronto Observatory.
Prof. Elias Loomis, New-York University.
Prof. Joseph Henry, Washington, D C.
Prof. Alex. D. Bache, Sup't. U S Coast Survey.

On the Establishment of a Zoological Journal.
James D. Dana, Esq. Joseph Liedy, Esq.
Prof. Spencer F. Baird, Prof. Louis Agassiz,
Prof. Jeffrey Wyman.

The Local Committee for the annual meeting at Albany, was then chosen. Their names are given below.

The list of officers of the Association for the ensuing year was then completed. The names of the officers elect are as follows:

President—Prof. LOUIS AGASSIZ, Cambridge, Mass.
General Secretary—Prof. WM. B. ROGERS.
Permanent Secretary—Prof. SPENCER F. BAIRD, Washington D. C.—Assistant Sec'y o' Smithsonian Institute.
Local Secretary—Prof. GEO R. PERKINS, Albany.

Local Committee for the Meeting at Albany.

Hon. J. V. L. Pruyn,	Dr. Alden March,
Hon. Franklin Townsend,	Dr. Thomas Hun,
Thos. W. Olcott, Esq.	Dr. Joel Wing,
E. P. Prentice, Esq.	Dr. Mason F. Cogswell,
Dr. O. Romeyn Beck,	Prof. Geo. R. Perkins,
Dr. Jas. McNaughton,	Prof. James Hall,

Prof. Clarke.

A resolution, recommended by the Standing Committee, was adopted, requesting a copy of the Address of the late President, Prof. HENRY, for publication and general distribution; and ordering the issue of 1,000 copies. This Address was an admirable production, and will command a wide circulation.

A number of new members were added to the Association before the morning adjournment—Among them I noticed the name of Miss Maria Mitchell, of Nantucket, the distinguished lady astronomer. I believe Miss Mitchell is the first female member of the Association; her election was of course unanimous.

Capt. WILKES presented proof-sheets of the Botanical part of the work of the Exploring Expedition; for which the thanks of the Association were returned.

The general session then adjourned, and the Convention resumed its business in sections.

In the Physical Section this morning, the first paper in order was an able paper by Prof. E. S. SNELL of Amherst, descriptive of an Instrument for exhibiting the mode of "Vibration in a Molecule of Unpolarized Light." The instrument showed the transverse vibrations in different directions successively. Its mechanism was pecular. A small disk of ebony plays upon a large disk, and being rapidly turned by hand exhibits the vibrations in a very beautiful manner. Prof. Snell made a calculation that the axis of this instrument would whirl around in the thousandth part of a second, allowing five hundred thousand vibrations on each angular vibration. He considered the great principles here illustrated as eminently calculated to impress the mind with a sense of the magnitude and grandeur of the works of the Divine Creator, demonstrating that, with all luminous bodies the undulations are propagated in all directions, at the rate of hundreds of millions of miles each second, and are then still incomplete.

The next paper was also by Prof. SNELL, describing an apparatus for showing the experiments of "Complementary Colors in Vision." This instrument was an ingenious contrivance, consisting of a disk variously colored, which being rapidly turned, produced most beautiful combinations of colors. The need of such an instrument to illustrate lectures upon the principle of light has long been felt, and the invention of Prof. Snell will prove a most valuable auxiliary to the teacher. The exhibition of the instrument created a considerable sensation in the Section. Remarks were made upon it by Profs. W. B. ROGERS, HENRY, PEIRCE, Mr. BOND, and others. Prof. HENRY considered it of much importance, notwithstanding its modest introduction by Prof. Snell.

Prof. A. D. BACHE made a communication on the "Tidal Observations at Cat Island, in the Gulf of Mexico." This was a subject which he intended to follow up before the Association, being the phenomena of the tides in the Gulf. A brief abstract would be quite unintelligible: I therefore leave the matter for another occasion.

The other Sections were busily occupied all the morning with interesting papers.

At the opening of the afternoon session of yesterday, the President, Prof. BACHE, in compliance with the request of the Association, made some important observations upon the late meeting at Charleston, in the course of which he uttered so many wholesome truths in regard to the interests of Science generally, and the government and stability of this Association in particular, that I give a verbatim report—believing that the remarks of the President will prove of much interest, especially the concluding portions, where the true interests of Science in our own country are earnestly and ably delineated.

Notes on the meeting of the American Association for the Advancement of Science at Charleston in March, 1850, presented by request of the Standing Committee by the President of the meeting, PROF. A. D. BACHE.

The American Association, at its meeting at Cambridge, it will be remembered, determined to hold an intermediate meeting between the two regular annual meetings, and selected Charleston, South Carolina, as the place for holding it. The meeting was deprived of the presence of the President of the year (Prof. Henry) by the pressure of important duties, requiring immediate personal attention, and in his absence I was requested to preside and at the close of the sessions was desired by the members present to give a notice of the doings to the meeting at New Haven. I had intended to give such an account as I was able of the papers and communications made to the Charleston meeting, but the industry and zeal of the Secretary, Doct. Lewis R. Gibbes, has, by preparing the volume of proceedings to be laid before you, prevented all necessity for such an abstract. There were thirty communications made on subjects of Natural History and eighteen on subjects of mathematical and physical science—the forty-eight papers being contributed by twenty-seven members of the Association. Many of these were of high interest and gave rise to remarks valuable to those pursuing the subject and interesting to all. Some of the papers were by authors of established reputation, so that the mention of their names would be security for the value of their papers; others by men whom, if life and health should be spared, will reach in future to the same point of distinction.

The germ of two most important discoveries in Natural History was contained in papers by two of our youngest members. The pithy announcement by one who is the best judge of their value and correctness, has made an indelible impression upon my mind. "The development of tissues is parallel to the growth of individuals," was the summing up by the master (Prof. Agassiz) of a paper which the excessive modesty of its author forced the Secretary to enter as "not received."

The contents of another were thus expressed:—"The order of succession of parts in foraminifera is identical with the successive development of leaves in plants, and can be expressed by the same formulæ." Such discoveries just warm from the study, it may be, as in these cases forced to light by the occasion of our meetings, are among our greatest triumphs on the way of advancement.

Nearly one hundred members were added to the Association, and of this number from seventy to eighty were in attendance.

These results of the first semi annual meeting which has been attempted, are very encouraging. There was a call for such a meeting, and in the place selected by the Association: the public and private demonstrations of interest in our prosperity by the attendance of the citizens with their wives and daughters and the hospitality with which we were entertained, were very gratifying.

The interest increased to the last, nor did it cease with the adjournment of the Association, but left an abiding mark of the meeting in the establishment of a museum of Natural History in connection with a Medical College, to be supported in a considerable degree by the liberality of the corporate authorities of the city of Charleston. This very substantial benefit to science, followed closely on the liberality of the Mayor and Council, constituting the same Corporation, in assuming the expenses of the meeting, and of the publication of its proceedings. *Could any spirit be better than this, or more thoroughly carried out in action!*

I believe that even greater benefits than these material ones were derived from this meeting in the sacrifice of old prejudices on the altar of science, the rekindling of old and kindling of new friendships and the general and genial glow of sympathies of head and heart. During the consultation of members and especially in the meetings of the Standing Committee, various matters of interest to the Association generally were discussed more or less formally, and some of these I was requested informally to present at this meeting for the consideration of this Association, and if deemed of sufficient import, for reference to the standing committee.

1. Some permanent form of organization is needed. Not one which will interfere with the freedom of movement of the Association as now constituted, nor with the changeable control and variable impulse which now characterizes us, but which will serve to connect, as far as may be, one meeting with the other. The experience of one meeting as now constituted, is not transferred to another. At the Charleston meeting we had neither the Scientific proceedings nor the business papers; neither the minutes nor the accounts of the Cambridge meeting, and but for some few members who had been at the previous meeting, there would, at the opening in Charleston, have been no connecting links between the present and the past.

The Association, not having the means of availing itself regularly, and as part of its organization, of its experience is kept always in the condition of its infancy as it were—vigorous indeed—but still in fancy. In the British Association unity of purpose is secured by a general body which directs, in the recess of the local, moving, and changeable body. At the Charleston meeting, the idea was broached in the Standing Committee, and I was requested to communicate it to the Association here, that a body of Secretaries organized from among those who are able to attend the meetings with regularity, and who are willing to undertake the labor, to serve for a limited term of, say five years, elected yearly and part vacating their office; in turn taken from the different parts of the Union, so as to render the attendance of part of them in any given place almost certain. If with this we could unite executive duties by a permanent Secretary or the officers of some Scientific Institution, to conduct, in the recess of the Association, our business other than what is local and incidental on meetings—to make sure of the action of Committees, of timely preparation for meetings, and of timely action on business of a past meeting, it would contribute essentially to our prosperity and to the advancement of Science through the action of the Association.

2. Do our present arrangements for publication represent the character of our meetings fully? Is there any one of us, who, after a diligent, close and interested attention throughout a meeting, does not feel disappointment when he comes to look over our volume of published proceedings? It was a striking principle stated by some early members of the general Association, that the great object was to communicate from one cultivator of Science to another, what was doing in each Department for its advancement—to hold *personal* communication for *personal* improvement. Thus, absence from the meetings, was to debar from access to or part in the proceedings. By discussions—oral accounts of researches and experiments—observations—by friendly counsel and encouragement, science was to be advanced through its cultivators. No attempt was to be made to influence or affect the absent. At first, mainly interested in this view, I came at last to think, that so much good should be made more diffusive and more permanent, and that, if this principle were rigidly adhered to, we should not be acting up to the full measure of our possible usefulness. Still there is a real principle of action. *Under it,* we should publish no papers—no abstracts—no accounts of our discussions. We would encounter no responsibility beyond the body of the Association.

The opposite principle would be to act upon the present as well as the absent; and to be effective should be reduced to system. Either all valuable papers should be published to full extent, or none should be so published—or a selection should be made. It should be understood that an abstract only of any or all valuable papers would be published, and that abstracts of all would be made or should be furnished by the authors. The discussions are frequently of as much value as the papers, and yet many of them do not appear at all, or, if appearing, are without the life which really characterizes them. It was a distinguishing feature of the Charleston meeting, that when the branches of science interlocked, the discussions were of the most useful character; and yet all these are necessarily lost in the proceedings; and that, by no fault of those who have so ably and zealously labored in their publication, but from want of rules and arrangement of the Association itself. To avoid irregularity, we might publish written papers, in which case we would be interfering with established Societies; or we might publish only abstracts of written papers, leaving their publication in full extent to other Societies. It is easy to see that there are objections to either course; but it may be well to consider whether either is not better than neither. Of the oral communications, it is our rule, that abstracts shall be furnished by the authors. But how ineffectual is this rule the number of titles in all our published proceedings of communications with the remark "abstract not received," will sufficiently illustrate. The Secretaries of the sections, it appears to me, should regularly make the abstracts of both written and oral communications, and in such extent that if no abstract is furnished by the author, this may stand as a substitute.

The labor thus involved would be considerable; but dividing it among a considerable number, it would fall lightly upon any one. Beside, there are always those who like such labor, or at least are willing to encounter it for the improvement in analysis which it gives, from a desire to do good, from a sense of duty, and from various worthy motives. As to the discussions, Are they fully presented in our present arrangements? What is wanted in regard to them generally is not a full report, such as the admirable systems of stenography afford, but a discriminating, brief and pointed note, such as can only be given by a person who understands the subject. In any single section, What one of us could undertake to give an account of the discussions on all the subjects which come, and if we pass from one section to another, how impossible would it be for the best informed to succeed in such an attempt? It appears to me worth consideration, whether we may or may not make more effective arrangements for printed accounts of written and oral communications, and of discussions, than those which we have heretofore had.

3. The meetings in sections is perhaps indispensable to the dispatch of business. At Charleston, where we had probably one hundred members in attendance, it was not necessary and we found great advantage in the discussion of subjects where the different lines of science crossed each other.—Thus the apparent subsidence of the Coast of South Carolina and the temperature of the Artesian Wells of Alabama brought out physical facts and reasonings of interest, while the communications of Lieut. Maury on the currents in the Atlantic,—of Prof. Le Conte on the exudation of ice from the stems of vegetables and others called out a corresponding contribution from the naturalists. As these remarks are reported in but a few cases, a very important feature and one which rendered the meeting perhaps more interesting and useful than any other single feature, does not appear in the published proceedings. Is it not worth considering whether without losing the advantage of a division, by which time is no doubt saved and too much popularizing of the subject avoided, we could not in certain cases have the advantage of general meetings for the reading of papers. If abstracts of all communications were prepared beforehand and forwarded to the Standing Committee, they could select such communications as it was deemed desirable to have presented in general meetings, but their labors would thereby be greatly increased and those of the members in a similar degree.

4. Is it desirable or not to increase the interest of the public in our meetings by devoting a portion of our time to popular accounts of new subjects. The meetings of the Association at Cambridge include meetings of the Sections which are strictly scientific, general meetings at which accounts of the proceedings of the Sections are given by the Chairman of each, general business is transacted and particular subjects presented by members chosen by the General Committee for the purpose. This though strictly belonging to the diffusion of science may not be found to be prejudicial to its advancement. It has good and evil involved in it. May not the good predominate?

5. The liberality of the city authorities of Charleston assumed the payment of the expenses of the meeting, including the publishing of the proceedings. This left our treasury untouched, and indeed made the Association gainers financially as well as intellectually. The subject of increasing the general contribution by members absent as well as present, was talked of informally, and I was requested to suggest its discussion by the Standing Committee at the present meeting.

There was one circumstance in this meeting which gave me pain—first, a shock of surprise, then unalloyed pain. It was to see that science which I had always considered the fast friend and natural ally of religion, was in some of its paths or in some turns and windings and seeming ends of those paths, regarded with suspicion by the religious. The able address of Dr. R. W. Gibbes of Columbia, vindicating Geology from suspicion of leading to infidelity, was not written without abundant and indeed urgent reasons derived from circumstances in the midst of which he is. In observing European science, one of the facts which struck me most forcibly and agreeably, was the connection in England, through her University education, between Science and Religion, so that some of the most eminent men were ministers of both. I thought it gave higher aims, a higher tone to science and scientific men, to be thus devoted to religion,—the moral and religious man being developed at the same time with the intellectual. I supposed the time had long gone by when the study of God's Works could be supposed to lead away from the revelations of his Word,—that the language which I heard last Sunday from a pulpit in this city, was of common consent and acceptance,—"Science is no ally to Scepticism." It is nevertheless true that a lesser wave of the same class with that which rose to overwhelm Geology some twenty years since, sweeps with considerable force over the Southern portion of our Union, and requires to be stayed with judgment to subsidence, unless by making ill-shaped and untimely obstacles, we raise it to the hight and force of breaking—a dangerous experiment for those who must meet the shock. The progress of science is toward truth, but how distant the goal. We think we discern clearly, but the medium changes and objects assume new colors, forms and proportions.

One age teaches cycle and epicycle for truth, and makes the earth a fixed center. Another approaches *near* the truth, and shows the law which ministers the will of Him who made all things and us, to give way in its turn to some higher truth. Science is emphatically progressive. Who would be so indiscreet as to hinge his religious faith upon changeable, progressive Science. A master has said, "Let no man upon a weak conceit of sobriety or an ill-applied moderation, think or maintain that a man can search too far or be too well studied in the book of God's *word*, or in the book of God's *works, divinity or philosophy*, but rather let men endeavor an endless progress or proficiency in both. Only let men beware that they apply both to Charity and not to swelling—to uses and not to ostentation, and again that they do not unwisely mingle or confound these learnings together."

I annex a rapid extract of the interesting discussion of yesterday, upon the observations of Prof MITCHELL, regarding Right Ascension and North Polar Distances:

The comments of Prof PEIRCE were a candid, but rigid and impartial criticism of the originality and accuracy of the method. Prof. HACKLEY, of Columbia College, and Mr. BOND, of Cambridge, followed in a more severe vein; and Profs. WALKER and BACHE in language of approbation and confidence in the final success of Prof. Mitchell's ingenuity. After the critics had concluded their remarks, Prof. MITCHELL took the stand, and spoke with even more than his usual ability and ardor in defense of his invention. He acknowledged the kindness and good feeling of most of the criticisms, though not of all. When he was approached with scientific fairness, he was confident either of satisfying others or of being convinced himself. His invention had been condemned by the highest authority in the country, (for that dignity must be conceded to his friend Prof. Peirce) and all he asked in return was the privilege of paying that gentleman's expenses to Cincinnati, and of entertaining him for six months with all the hospitality of which he was capable, that he might have the pleasure of hearing him *condemn*, from actual observation and experiment, the invention which he had condemned in theory. To show that he was in earnest, he would make another proposition: that the American Association or the Smithsonian Institute should offer a prize for the best method of recording such observations—to be adjudged by European astronomers. He would himself pay one-half the sum, and enter the lists confident of success.

The stress of the argument of the critics bears upon the fact that the instrument depends for its accuracy on rigid mechanical certainty of location. True; but why is not the same objection made to the transit instrument? Every observation made is dependent on the perfectly immovable fixity of the axis at right angles to the meridian. The least deviation in the firmness of the axis is a source of essential error. Now if this certainty of direction has been once obtained, can it not be obtained a second time? Nay! it need not be twice obtained for it is the very certainty of the axis of the transit instrument, which makes the certainty of this recording instrument. If the one is right, the other cannot be wrong.

Prof. M. proceeded to confute the objection of Prof. Hackley, that the new method had no provision for variations of eccentricity. He rested, however, the merit of his invention on its results. There were his 3,000 observations, open to the inspection of every man disposed to deal fairly with them. They stood just as recorded by his instrument. They were right, compared with those of Greenwich observatory. He could not help this; it was the work of his instrument, and by that he wished it be judged.

The speech of Prof. Mitchell was warmly applauded by the audience. Some time was then spent by Prof. Hackley and Bond, in an unsuccessful attempt to extort from Dr. Bache, President of the Association, a decided expression of opinion on the question—either *pro or contra*. The final result of the inquiry was that he had not seen the instrument and therefore could not decide for others; but he knew that if there was a way to accomplish these ends, the ingenuity of Prof Mitchell would discover it, and that his fidelity as an observer would report it with rigid impartiality.

Prof. PEIRCE of Cambridge, hoped that the consideration of this grave subject would not be marked by a censorious or caviling spirit, and above all the *brag game* might not be made use of in a scientific discussion. The dignity of that body and of the subjects which they discussed, demanded the fairness and the candor of scientific acquirement; the contrary style of debate should be confined to its proper place among brawling and duelling bullies. He concluded with a high tribute to the genius and character of Prof. Mitchell.

The discussion which followed the paper of Dr. ERNI on the "Causes of Fermentation"—of which I have already transmitted an abstract—was of considerable interest. The facts elicited by the remarks of various gentlemen were of some importance. The subjoined sketch embodies the leading features:

Dr. R. E. ROGERS of Va. remarked that while he regarded it an interesting fact stated by Mr. Erni of the power of arsenic to "poison" the yeast fungus, and thus prevent its further development and propagation, and therefor to arrest vinous fermentation, yet he did not think we could from that conclude it to be a poison to all the lower forms of vegetation; or that because a substance is a poison to animals (as in the case of arsenic,) that it is therefore so to vegetables. He cited the fact, that not only is vegetation freely developed in many saline solutions, but especially often in those of the Arsenite of Potassa and Corrosive Sublimate—substances the most poisonous to animal forms, and in ordinary cases remarkable for their antiseptic properties. He thought that in studying such lower forms of organization it was necessary, as in the case of the higher, to investigate the peculiarities of each species.

Prof. Silliman, Jr. stated a case of some interest, showing the influence of carbonic acid as a metamorphic agent in changing the constitution of silicates. He referred to the analysis of an altered scapolite from New-Jersey, in which a portion of the lime from the silicate has been converted into carbonate of lime, although no change has taken place in the external character as observed, except a less degree of hardness. To this, as a general cause, we must look for an explanation of numerous cases of silicates having variable quantities of carbonates of lime, many of which have been proposed as separate species.

—The remaining portion of to day's proceedings, want of time and room compels me to postpone. M.

The Arctic Exploring Expedition.

We have been kindly furnished with the following letter from one of the officers attached to the American Arctic Exploring Expedition:

U. S. BRIG ADVANCE,
WHALE FISH ISLANDS, Friday, June 28.

We arrived here on the 24th inst. the *day after* Com. Austin sailed for the north with his squadron of two ships and two steamers. We are fortunate in finding here his empty storeship just taking in ballast to return to England; this gives a good opportunity of communicating with our friends, of which we gladly avail ourselves.

Our passage has been somewhat longer than I anticipated, owing to calms and light winds, on the Banks. Near the coast of Newfoundland we met with a great deal of ice in the shape of bergs; more than a hundred were counted in one day. On the night of the 9th, with thick and foggy weather and a light wind, we came in direct contact with a large berg, not being able to see it in time to avoid it. We passed clear of in the course of a minute or two, and fortunately without other damage than the loss of a jibboom. After passing the latitude of 51° we saw no more ice till we reached 60°. Thence to this place, mostly in sight of the Greenland Coast, the bergs were few, small and far between—no ice of any other description was seen.

Much to my gratification, the Rescue made her appearance yesterday—all well. Lieut. Griffin tells us that he kept much to the eastward of our track and saw but little ice; but, instead of light winds and pleasant weather, which we enjoyed, he had it rough and boisterous.

Immediately after leaving here we shall probably have much ice around us, and therefore smooth water, which will add much to the comfort of our deeply laden little barks. From all we can learn here, we shall have much the advantage of all the vessels that have gone before us in point of sailing.

The principal Danish settlement on the coast is 25 miles from here, on the Island of Disco. We have sent about there to procure supplies. On these Islands are two Danes and a number of Esquimaux. Nothing is to be had, the English Squadron having bought up everything.

All sail to morrow. As for our future movement and places I can give you no information. Nothing has been heard of the "North Star." We are not without hopes, however, that ere reaching Wellington Straits we shall have something as to the probable direction the missing ones have taken.

The officers and crew of both vessels are cheerful and in good health, and, I think, imbued with the proper spirit to follow wherever their commander may lead them.

Later from Havana—Sentence of Death.

The steamship Palmetto arrived at this port yesterday afternoon from Key West, whence she sailed on the 16th inst. The mail schooner from Havana arrived the day that the Palmetto sailed. The Captain reported that the Captains of the Georgiana and Susan Loud had been condemned to death by the authorities at Havana.

A rumor of the arrival of the Ohio yesterday afternoon was occasioned by the appearance of the Palmetto. The Ohio is now nine days out from New Orleans, and will probably arrive in the course of the day, bringing still later Havana news.