

plication of science. Such applications, especially on this continent, are so astounding, they spread themselves so largely and unbrageously before the public eye, as to shut out from view those workers who are engaged in the profounder business of discovery.

Take the electric telegraph as an example, which has been repeatedly forced upon my attention of late. I am not here to attenuate in the slightest degree the services of those who, in England and America, have given the telegraph a form so wonderfully fitted for public use. Assuredly they earned a great reward, and assuredly they have received it. But I should be untrue to you and to myself if I failed to tell you that, however high in particular respects their claims and qualities may be, practical men did not discover the electric telegraph. The discovery of the electric telegraph implies the discovery of electricity itself, and the development of its laws and phenomena. Such discoveries were not made by practical men, and they never will be made by them, because their minds are beset by ideas which, though of the highest value from one point of view, are not those which stimulate the original discoverer. The ancients discovered the electricity of amber; and Gilbert in the year 1600 extended the force to other bodies. Then followed other inquirers, your own Franklin among the number. But this form of electricity though tried, did not come into use for telegraphic purposes. Then appeared the great Italian, Volta, who discovered the source of electricity, which bears his name, and applied the most profound insight and the most delicate experimental skill to its development. Then arose the man who added to the powers of his intellect all the graces of the human heart, Michael Faraday, the discoverer of the great domain of magneto-electricity. Oersted discovered the deflection of the magnetic needle, and Arago and Sturgeon the magnetization of iron by the electric current. The voltaic circuit finally found its theoretic Newton in Ohm; while, at Princeton, Henry pushed forward the course of experimental inquiry. Here you have all the materials employed at this hour in all the forms of the electric telegraph. Nay, more, Gauss, the celebrated astronomer, and Weber, the celebrated natural philosopher, both professors in the University of Gottingen, wishing to establish a rapid mode of communication between the observatory and the physical cabinet of the University, did this by means of an electric telegraph. The force, in short, had been discovered, its laws investigated and made sure, the most complete mastery of its phenomena had been attained, nay its applicability to telegraphic purposes demonstrated, by men whose sole reward for their labours was the noble joy of discovery, and before your practical men appeared at all upon the scene.

Are we to ignore all this? We do so at our peril. For I say it again, behind all your practical applications there is a region of intellectual action to which practical men have rarely contributed, but from which they draw all their supplies. Cut them off from this region and they become eventually helpless. \* \*

De Tocqueville evidently doubts the capacity of a democracy to foster genius as it was fostered in the ancient aristocracies. "The future," he says, "will prove whether the passion for profound knowledge, so rare and so fruitful, can be born and developed so readily in democratic societies as in aristocracies. \* \*"

It rests with you to prove whether these things are necessarily so; whether the highest scientific genius cannot find in the midst of you a tranquil home. I should be loath to gainsay so keen an observer, and so profound a political writer, but since my arrival in this country I have been unable to see anything in the constitution of society to prevent any student with the root of matter in him, from bestowing the most steadfast devotion on pure science. If great scientific results are not achieved in America, it is not to the small agitations of society that I should be disposed to ascribe the defect, but to the fact that the men among you who possess the genius for scientific inquiry are laden with duties of administration or tuition, so heavy as to be utterly incompatible with the continuous and tranquil meditation which original investigation demands. I do not think this state of things likely to last. I have seen in America a willingness on the part of individuals to devote their fortunes in the matter of education, to the service of the commonwealth, for which I can not find a parallel elsewhere.

This willingness of men to devote private fortunes to public purposes, requires but wise direction to enable you to render null and void the prediction of De Tocqueville. Your most difficult problem will not be to build institutions, but to make men; not to form the body, but to find the spiritual embers which shall kindle within that body a living soul. You have scientific genius among you; not sown broad cast, believe me, but still scattered here and there. Take all unnecessary impediments out of its way. \*

\* Professor Tyndall sought practically to carry out his own suggestion, and set apart the net proceeds of his lectures in this country, delivered at Boston, Philadelphia, Baltimore, Washington, Brooklyn, New Haven, and New York, amounting to \$13,000, and conveyed the same in trust to a committee, composed of Professor Joseph Henry, General Hector Tindall, and Professor E. L. Youmans, who may expend the income in aid of students who devote themselves in original research.

## 2. THE AMERICAN NATIONAL EDUCATIONAL ASSOCIATION.

WASHINGTON, January 30th.—The Department of Superintendence of the National Education Association met to-day with an increased attendance. The Chair read a communication from the Secretary of the Vermont State Teachers' Association, inclosing a resolution recently adopted by the Association, indorsing the plan of giving the proceeds of the sale of public lands for educational purposes.

Gen. Eaton, from the Committee on the Centennial, recommended that each State, Territory, and city be invited to prepare a representation of its educational condition and a history of its educational progress for exhibition at the Centennial; that a census be taken in 1875; that the prominent educators of the country be invited to co-operate in the matter of the Centennial; and that the International Educational Congress be held in connection with the Centennial. The report was adopted.

Mr. Ruffner, of Virginia, of the Committee of National Aid to Education, made a report. The first resolution strongly approves of the policy of the Government in leaving to each State and locality the conduct of its own educational affairs; the second recognizes the wisdom of the Government in establishing the Bureau of Education; the third indorses the proposition before Congress, setting apart the lands for the purpose of free education in the several States, on the basis of a division of illiteracy existing in the different States from the age of ten years and upward.

When the reading of the resolutions had proceeded thus far, the President entered the hall and was received standing. He was conducted to the platform and was introduced as "The President of the United States, whom it need not be said is our friend, theoretically and practically." The President took a seat beside Mr. Binford on the platform, and Mr. Ruffner continued the reading of his report.

The fourth resolution favours such united action on the part of the special friends of primary, and of agricultural and other industrial education respectively, as would allow the various State and Territorial Legislatures to employ, at discretion, specified proportions of such donated funds for either or both of those forms of education. A few minutes later the President left the hall, the audience rising as he passed out. A moment after, Governor Shepherd entered the hall and, having been formally introduced, delivered a short address.

The resolutions were then taken up and the first two adopted. The third elicited considerable discussion, during which Gen. Eaton stated that Gen. Hawley, President of the Centennial Commission, and Judge Kelley, Chairman of the House Centennial Committee, were present, and suggested that the discussion be suspended until these gentlemen could be heard.

Representatives Hawley (Conn.) and Kelly (Penn.) were introduced, and delivered speeches on the subject of the Centennial, maintaining that it would be educational in its tendency. Resolutions were adopted declaring it to be the duty of Congress to aid education in the District of Columbia.

After further proceedings, the Convention adjourned until August next, when another meeting of the Department will be held at Detroit.

## 3. MR. GOLDWIN SMITH ON ENGLISH EDUCATION.

A large meeting was held on the 21st ult., in the Free Trade Hall, Manchester, which had been convened "to support the Bill of Mr. George Dixon, M. P., for the establishment of School Boards, and the enforcement of compulsion everywhere." Mr. Goldwin Smith said: "With the general object of the meeting, as I always sympathised, so I cordially sympathise now, and my sympathies are strengthened by convictions derived from experience abroad. That the nation must be educated all are agreed. Leave the people uneducated, and with political power in their hands, and they will wreck themselves and England. National education there must be, and, for reasons well stated already, that education must be unsectarian. Sectarial education would deprive you of the excellent influence the common school education would have in promoting the unity and, therefore, the greatness of the nation. Sectarial education is condemned by its fruits. What are its fruits in England? Masses of dangerous ignorance. It is condemned on another ground; while you have an Established Church, sectarial education, aided by the nation, must throw immense and unfair power into the hands of the clergy of the Church, and observe I impeach no man's convictions. Let a man be a Catholic; let a man be a Ritualist, if he pleases; I have not a word to say; but observe the position, and what the tendencies now are of the Church, into which recent legislation has thrown such immense additional power. It is a Church nominally under the control of the nation, and of the law.