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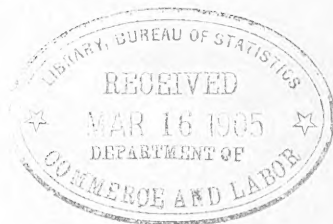
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Education and Empire

An Address Delivered by the President of the Association
of American Agricultural and Mechanical Colleges
and Experiment Stations,

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Washington, D. C.,

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PRESIDENT PATTERSON'S ADDRESS.

Gentlemen of the Association of Agricultural Colleges and Experiment Stations:

I thank you for the honor which you have conferred upon me in selecting me to preside over your deliberations during the present session.

The highest distinction within the power of this body to bestow is not to be lightly esteemed and I can only wish that I had been more worthy of it.

I propose to occupy your attention tonight for a brief space by some thoughts on the work of the Colleges and Universities which this Association represents, and the influence thereof upon the present and future of the American people.

Many men distinguished by learning and experience have in years gone by addressed you from this chair. Some having sown the seed which others in due time will reap, have already passed over to the majority; others happily are still with us to animate by their zeal, encourage by their example and stimulate by their attainments.

Like the pioneers of freedom in the western world; like the founders of the great republic; like the statesmen who laid the foundation of the system of education which this association represents today—these men have builded wiser than they knew and results which they could not have anticipated have followed.

Not visionary doctrinaires, but practical men, they addressed themselves to use to the best advantage

the material ready to their hands and as new material accumulated incorporated it with the structure as it grew—maintaining the original idea of utility and preserving the architectural symmetry of the fundamental conception.

The organization of this association was a happy thought. These annual meetings have brought together a body of workers and of thinkers, whose thoughts and achievements contributed to a common stock, have become the common heritage of all. Happy intuitions, intelligent, scientific forecasts have been patiently experimented upon, translated from the hypothetical into the actual—accepted as accredited results and added permanently to the stock of human knowledge.

Of some the relationship became immediately apparent. They gravitated at once into position; discovered their proper place in the order of things—filled a space hitherto unoccupied, bridged over a hiatus, supplied a missing link.

Others did not immediately yield to classification and possible affinities required further investigation. But assailed from this side and from that in the crucible and by the spectroscope a stubborn isolation could not long be maintained and in the end the most refractory yielded to the analytic of the human intellect and the potency of the human will.

But how greatly have these activities been stimulated by mutual conference and mutual cooperation—a hint in discussion has struck a spark

which ignited the fuel into a flame; a bow drawn at a venture has found a joint in the harness and penetrated the vitals of an unsubdued fact; a stray seed dropped into a generous soil has under the influence of sunshine and rain sprung up and in due time brought forth fruit—first the blade, then the ear and at length the full corn in the ear.

A little over forty years ago a new departure took place in education in America; until then classics, literature and philosophy had been the dominant features of college work. The natural sciences were still in their infancy; scientific men had, however, for more than half a century been working along scientific lines; a priori deduction had given place to induction founded upon observation and experiment. The atomic theory of Dalton; the correlation of physical forces worked out laboriously and brilliantly by Helmholtz, Joule and Tyndal; the uniformitarian hypothesis of Sir Charles Lyell; the spectroscopic analysis of Kirschoff and above all the far-reaching generalizations of Darwin and Wallace had made a new epoch in scientific discovery. It recalled the spirit of adventure which roused into feverish activity the boundless energy and heroic endurance of Henry the Navigator, Vasco da Gama, Christopher Colombo and Alphonse Albuquerque four centuries before. A new world of ideas seemed to dawn upon mankind with the introduction of the telegraph, of railway construction, of steam navigation and the application of science to the industrial arts. The age of the

Utopia of Sir Thomas More and of the new Atlantis of Bacon divested of fantasy and clothed in the habiliments of decorous sobriety, seemed to have dawned upon mankind.

The stimulus given to immigration brought hundreds of thousands annually to our shores and the impulse given to transcontinental migration, through the development of the railway system east of the Mississippi transferred hundreds of thousands annually from the Atlantic and middle states to the fertile lands stretched out in forest and prairie, ready to receive and reward the hardy and industrious pioneer with comfort and plenty. The rich gold fields of the West, acquired by conquest and purchase; the annexation of the great empire of the Lone Star State; the boundless domain between the Mississippi and the Rockies—inviting capital and enterprise for pasturage and cultivation; all contributed to develop a feeling of unrest and a longing for better things. The long pent-up energies of a young, vigorous, self-reliant people broke beyond the geographical limits which had hitherto bounded their labors and rewards and swept a living tide of humanity over hill and valley, over mountain and plain, beyond lake and river into the illimitable lands of the near and middle and far West—from the Alleghanies to the Mississippi and Missouri; from the Mississippi and Missouri to the great American desert, the Rocky Mountains and the shores of the Pacific ocean. And thus the wave of settlement, adjusting itself to peaceful industry laid the foundations of

new states, planted new industries, brought vast stretches of hitherto unproductive lands under cultivation; opened up the treasures of the mine; multiplied the lines of communication and poured the agricultural and mineral wealth of the great west into the commerce of the world. Concurrently with these recent economic changes resulting from the operation of natural causes economic changes of equal magnitude were brought about through fiscal legislation at home and abroad. The establishment of free trade in Great Britain opened the markets of that country to American agricultural products, stimulating to an unwonted degree production at home and correspondingly depressing agriculture in the British Isles. American wheat and corn monopolized the supply of breadstuffs to the British artisan, building up and controlling a market into which no other competitors could enter on equal terms. Concurrently therewith the protectionist policy adopted by the United States not only rendered this country independent of foreign supplies, but enabled her in the end to become in many of the chief products of the mine, the forge, and the loom a formidable competitor for the chief part of the commerce of the world. Under these conditions, vaguely apprehended by the majority, but apprehended with more or less clearness of vision by a few of the far-sighted statesmen of the country, the Morrill law of 1862 was passed by the Congress of the United States.

The demand for a system of education adapted to the needs of the time, which should go beyond the require-

ments for classics, law, medicine, divinity and letters; an education which without proscribing or neglecting classical and philosophical studies, should utilize for the public good the known and discoverable laws and processes of nature, for the increase of production and the multiplication of the comforts and necessities of life. This demand the Morrill law was intended to satisfy, and upon this foundation more than fifty state colleges and universities are established.

Mr. Morrill saw that in the rapid alienation of the public lands through settlement and gratuitous allotment to railway corporations the public domain was rapidly being exhausted. He accordingly determined to dedicate a part of this rapidly diminishing public domain to the education of the American people, along new lines and according to the necessities imposed by geographical and economic conditions peculiar to the western hemisphere. He provided that land script should be given to the several states in proportion to population for the endowment of institutions of learning, wherein should be taught those branches of learning related to agriculture and the mechanic arts, without excluding classical and other scientific studies, and including military tactics, for the education of the industrial classes in the several pursuits and professions of life. This was a radical departure from the old idea of education. It was a conception of University work such as had never yet been thought out by any thinker and whose realization had never yet been attempted. The existing body of human knowledge, wheth-

er of mind or of matter, hypothetically assumed or actually realized, was to be available for appropriation by the learner; and the far greater domain of nature, unknown or partially known, invited the investigator through observation and experiment to new fields of discovery. The old institutions looked doubtfully and not quite sympathetically on the new education. They gravely shook their heads at the credulity of those who thought that investigation in those branches of science relating to agriculture and the mechanic arts could be carried beyond the merest rudiments or would be productive of results at all commensurate with the expenditure of time and money proposed. But when within a few years they saw an interpretation given to the legislation of Mr. Morrill which did not confine Mechanic Arts to blacksmithing, carpentry and kindred handicrafts—which went beyond the still more advanced conception of manual training and discovered its ultimate application in Engineering—Mechanical, Electrical, Civil, Sanitary and Mining; when they saw as preliminary and preparatory to these extended courses in Mathematics, Chemistry and Physics, reaching far above and beyond those in the older Colleges and Universities they began to show more consideration for the new and to ask "Can any good thing come out of Nazareth?" When, moreover, they saw that the foundations of a Science of Agriculture were being laid in extended courses of Botany, Comparative Anatomy and Physiology, Biology, Chemistry, Entomology — that through these, barren fields were made

fertile the products of animal and vegetable industry improved in quality, multiplied in quantity and increased manifold in commercial value, the exclusiveness of the old tacitly acquiesced in a modified recognition of the new. Silently, steadily, resistlessly the new has moved on regardless of the contempt, the pity and tolerance of the old. Ere long the new institutions, retaining for the most part the classics and the philosophies of the old, established Chemical, Physical, Biological and Engineering laboratories on a scale of expenditure and completeness far beyond the resources of the old; they set the pace for scientific study and investigation in America. By their bold experiments and stupendous results they startled the old institutions out of their complacent lethargy and roused them to an activity hitherto unknown. They made it manifest that classical and philosophical attainments and discipline could exist side by side with thorough training and far reaching acquirements in Natural Science and that these latter found an application in the development of Agriculture and Manufacturing industry out of all proportion to the original conception on which the legislation of 1862 was based.

A few of the older Universities—originally denominational but long since secularized — Yale, Harvard, Princeton, Columbia, with prestige large endowments and wealthy alumni, who have contributed freely to enlarge the sphere of their capability and activity; and a few recently founded and endowed by individual munificence on a scale of unprecedented

liberality—Johns Hopkins, Leland Stanford and Chicago University stand well to the front and maintain each a staff of workers in the field of investigation who are the peers of any in the land. Most of the others, especially those which are dependent upon denominational support have fallen hopelessly to the rear. The Colleges and Universities established under the Congressional act of 1862, whose areas of activity were enlarged by the supplementary legislation of 1887 and 1890 have grown so rapidly that they are now recognized in most of the states as the chief exponents of the higher education coupled with the practical education which finds expression in ever multiplying bushels of wheat and bales of cotton and tons of steel—an education which conditions and renders possible the supremacy of America in productive activity and commercial enterprises. But our scientific achievements and their translation into material wealth must not be content with these triumphs. The last forty years—a period coincident with the life of these institutions—have witnessed an increase in population and in wealth such as the dreams of the most sanguine could not have ventured to anticipate. No parallel for it exists either in ancient or modern history, either in the old world or the new; and the actually realized power and wealth of the nation are but the beginning of greater and mightier things yet to be. Within another half century our population will have quadrupled; our wealth increased in more than corresponding proportion, and our strength on land and sea such that no power or com-

bination of powers will be able to gainsay or resist. In this mighty onward march the State Colleges and Universities will lead the van. But they must do more than point the way which leads to material wealth and dominion. Problems relating to mind and matter of surpassing interest to mankind are pressing for solution and to their solution the scientists and laboratories of these Colleges and Universities must contribute an adequate if not a preponderant share.

I have seen it stated that the theory set forth in Prof. Osborne Reynolds' "Sub Mechanics of the Universe" "that not a flawless continuous ether, but a granular structure of the spaces of the universe that not only explains all observed phenomena and the cause of gravitation but reveals the prime cause of the physical properties of matter" finds for the present one of its chief facts of interest in the fact that few if any of living mathematicians are capable of following his demonstrations and none are strong enough to attack it. Sir William Crookes, in an address to the International Congress for Applied Chemistry at Berlin, June 4th of this year, said that chemists now admitted "the possibility of resolving the chemical elements into simpler forms of matter or even of refining them away altogether into ethereal vibrations of electrical energy." He further declared that "a number of isolated hypotheses as to the existence of matter in an ultra-gaseous state, the existence of material particles smaller than atoms, the existence of electrical ions or electrons, the constitution of Rontgen rays and their

passage through opaque bodies, the emanations from Uranium and the dissociation of the elements were now welded into one harmonious theory by the discovery of Radium." He added that if the hypothesis of the electronic constitution of matter were pushed to its logical limit it is possible that we are now witnessing the spontaneous dissociation of Radium and if so must begin to doubt the permanent stability of matter." If this be so the "formless mist" must once more reign supreme and the visible universe dissolve.

Sir Oliver Lodge in the Romanes Lecture delivered at Oxford on the 14th of June, suggested that atoms of matter are actually composed of concentrated portions of electricity which could exist separately or in association. Seven hundred such electrons in violent orbital motion among themselves would constitute an atom of hydrogen; 11200 electrons would form an atom of oxygen and 150,000 an atom of Radium. We have on this theory arrived at the ultimate chemical particle, various combinations of which form all the infinitely diverse aspects of matter. Sir Oliver observes that "the attraction of this hypothesis is that it represents a unification of matter and a reduction of all material substance to a purely electrical phenomenon." This electrical theory of matter involves two consequences, a continual increase in the velocity of the constituents of an atom and the ultimate instability of those constituents. There is thus a state of flux and decay "in the foundation stones of the universe, the elemental atoms

themselves." Sir Oliver thinks, however, that there is at the same time a system of reaggregation at work which constitutes a sort of regenerative process which will preserve the universe by the creation of new forms of matter in the place of forms that have been dissolved. If these things be so it can no longer be said "that the ultimate details of atomic constitution are beyond our scrutiny." But granted that these details are known the mysteries of the universe are still unsolved. What is the nature of electric phenomena? What are those things which can evolve out of structureless simplicity the infinite complexities of the earth and heaven? Does a directive force—intelligent and eternal become the necessary postulate for a rational conception of the universe? Are we warranted in concluding with Tennyson that

"Only that which made us meant us
to be mightier by and by
Set the sphere of all the boundless
heavens within the human eye;
Sent the shadow of Himself, the
boundless; through the human soul
Boundless, inward in the atom, boundless
outward in the whole."

We are manifestly on the threshold of mighty discoveries. What part will the American intellect play in the investigation and solution of these problems? What part will the Colleges and Universities of this association play in the unfolding of this stupendous drama? In the laboratory of the chemist and the physicist the work must be done. To this end we need skilful workers, clear thinkers, prophetic men with trained intellects

and scientific imaginations. To this end we need special endowments; but special endowment for research means large expenditure for the best material facilities which ingenuity can devise and skilled workmanship can construct. It means also highly disciplined and trained investigators whose time is not occupied with the drudgery of instruction but which is devoted entirely to original work. These conditions necessarily imply large expenditures and the means for this must be obtained from the liberality of the nation and from the generosity of individuals. We must encourage the study of higher mathematics in order to develop men who shall be able to follow and interpret the mathematics on which the theory of the "Sub-Mechanics of the Universe" rests. We must create in our laboratories the Curies and the Kelvins and the Crookes and the Clark-Maxwells, the Rutherfords and Bancrofts and Oswalds who shall grapple with and if possible solve the mysteries of the physical universe. This, I trust, will fall largely to the lot of the Colleges and Universities which we represent today. Let us hope that from their halls shall issue the honored few; from their ranks shall arise the heroes of science who in the achievements of these last and greatest results shall be welcomed to join the ranks of the immortals.

With the accession of the Tudors in 1485 the influence of England in continental affairs had materially diminished. The days of Crecy and Poitiers and Agincourt with the passing of England's heroes—the Black Prince and Henry V. had also passed away. The

Treaty of Pecquini had left England none of her continental possessions except Calais and this too, was to pass to the House of Valois before Tudors ceased to reign. The ascendancy of Spain was unquestioned. Even after the abdication of Charles V. the Spanish monarchy was the most powerful in the world. The vast over-sea possessions which that monarch had inherited from Ferdinand and Isabella he transmitted, enlarged and consolidated to his son Philip. But the growing sea-power of England after the accession of Elizabeth was destined ere the close of the century to give the Spanish power a fatal blow. The defeat of the Armada sealed the fate of the Spanish supremacy and proved that something more than prestige and gold was needful on which to build national power and national prosperity. From 1588 the star of Spanish dominion gradually declined and the scepter was by degrees transferred to mightier hands. England followed close upon the track of discovery, but more than a century passed before any permanent settlement was made by her in the new world. Though she entered later on the race of transatlantic adventure than either Spain or France, yet she was destined to outstrip all her competitors in colonial dominion. The colonies founded during the reign of the successor of the Great Tudor Queen were established by men not impelled by the lust of gold but by men who sought political freedom and liberty to worship God according to their conscience. They carried with them love of home, reverence for law, a deep sense of the inalienable rights

of man and the conviction that in their veins flowed the blood of Alfred and of the Barons who extorted the Magna Charta from King John on the field of Runnymede; and here, with these convictions and these traditions they laid the foundations of what in the immediate future will be the mightiest nation which the world has ever seen. The Revolution of 1776 broke the political bonds which united the original colonies to the mother country; but it did not break the bonds of blood, of inherited traditions, and of the glory which attached to the common inheritance. All the glorious ideals of the race have quickened, enlarged and intensified; and have found realization to a degree which could never have been attained within the narrow limits of the original home in the old world. The immemorial heritage of freedom, brought by Angle and Jute and Saxon from the banks of the Saale to those of the Thames and the Humber and the Dee, and after ages of growth within the British isles transplanted to ampler fields in America has found its ultimate development in the great nation of whose origin and history we are all proud today. And it may surely be a source of legitimate pride to the mother country "that the great empire which neither the ambition of Louis XIV nor the conquering power of Napoleon could dismember, received its first rude shock from the courage which she had communicated to her emancipated offspring and that amid transatlantic wilds grew up a race of men who have established real liberty" on the principles which

they inherited from ancestors who were the countrymen and compatriots of Bacon and Sidney, of Hampden and Oliver Cromwell.

The last trace of Spanish dominion on the American continent was obliterated four years ago by the descendants of men who harried and plundered the Spanish main in the days of Drake and Effingham, of Frobisher and Sir John Hawkins. The one then as now represented the Latin race with its spasmodic activity and ephemeral ideals; the other the sturdy Anglo-Saxon stock with its sturdy perseverance, its unflagging energy, its uncompromising love of freedom and its corresponding hatred of oppression. And this Anglo-Saxon stock by its inherent vigor and its intelligent foresight and its undaunted spirit of enterprise is the coming race in whose hands lie the destinies of civilization. In its veins the sap swells high today and it will swell high tomorrow.

The future of mankind lies not with the Mercurial Latin-Celtic race, nor with the crafty Mongol, nor with the perfidious Slav, but with the self-reliant, freedom-loving, God-fearing men who preferred exile and poverty to affluent, inglorious, conformity; and who emancipating themselves from the idols of the cave and the idols of the market buckled on their freed spirits the harness of mind.

In the United States of today even the busiest and most actively employed in the intervals of leisure stop to enquire whence they came, what they are and whither they tend. The apprehension has been felt and express-

ed that we are too much given up to the acquisition of wealth, too material, that we care nothing for the past, are absorbed in the cares of the present and clothe the future in the draping of the accumulated gain built upon the foundations which we have laid. The hundreds have grown into the thousands, the thousands into millions; we look to a future when the latter shall have expanded into billions and then the golden age in another sense than that of the ancients will have superceded and supplanted all others and wealth, not brains, will rule mankind. But wealth in the second generation if not in the first looks anxiously for a background of respectability. This is a wholesome feeling and a healthy indication. The wealthy long for something more than mere wealth to differentiate them from the masses. Energy and capacity and ability to accumulate wealth were indispensable but these must have had an antecedent existence in the family. Heredity and atavism are assumed as the necessary conditions and these are sought for in family history. Family traditions, family records, title deeds, names and surnames, on this side of the Atlantic and on the other are eagerly examined, studied, collated, and translated into genealogies embodied in family trees with all the accessories of crests, mottoes, armorial bearings and coats of arms. These ideas are not incompatible with Republicanism. The Washingtons and Jeffersons and Adamses and Winthrops of colonial times were proud of their title deeds and genealogies and descent from the gentry and gentlemen and nobility

of the mother country. Not only the leaders in the American revolt of 1776 were gentlemen and the sons of gentlemen, but most of the non-commissioned officers and men were of reputable English and Scotch and Irish descent. Gentlemen fought and won in the Revolutionary contest. In no subsequent war in which the United States has been engaged did the armies of the republic contain so large a proportion of gentlemen. What then is called the modern craze for genealogy is a healthy conservative mental condition an effort to discover and if not to discover to make a place in the annals of recorded or unrecorded gentility. Fortunately the original contributory elements which make up the history of the Great Republic are not so difficult to discover. The early history of Puritan Pilgrim and Cavalier is well known. The politico-religious ferment which led to the emigration of the one and the spirit of adventure which led to the voluntary expatriation of the other are matters of history.

Other contributory elements from Germany and Scandanavia and central and eastern Europe have swelled the population of this newer and mightier England which occupies the best half of the North American continent, but the basis, the back-bone, the brain of the country remains and will remain Anglo-Saxon. Our history thus finds its roots in the history of the people of the old world and pre-eminently in that of middle England, which stands mid-way between the Saxon of the Saale and the Saxon of America. Through our relations with them Robert Bruce and Bannockburn

are ours; Hastings and Runnymede, Evesham and Crecy, Bosworthfield and Marston Moor, Blenheim and Culoden. Through them we inherit the glory of an inalienable birthright in the common law, in the growth of parliamentary government, in the reformation of Knox and the martyrdom of Latimer and Ridley. Through them we claim an equal inheritance in Wickliffe and Bacon and Shakespeare in Newton and Boyle and Harvey; in Burleigh and Halifax and Chatham—while we allow them to share the greatness of those who are peculiarly our own, Franklin and Washington and Longfellow, Andrew Jackson and Abraham Lincoln.

Now inasmuch as the students in our Colleges and Universities are or should be educated not as scholars and scientists only, but as citizens who will be concerned in shaping the destinies of the greatest people whom the world has ever seen, it is not less incumbent that adequate provision be made for the attainment of the one end equally with the other. The State University must be what Ezra Cornell in founding the University which bears his name wanted it to become, viz: a place where everything could be taught which it is possible to teach, and where everything could be learned which it is possible for one to know.

I would urge then, with all the insistence which I may, the necessity that history and political philosophy with all their correlated subjects should become a special feature of the University and Collegiate instruction which we represent. In

many they are already distinctive features. They should be made distinctive and obligatory in all.

Within the last 200 years history has been made rapidly in America. For a time almost isolated from contact with European nationalities and in touch with the old world mainly through official relationship, political life developed without interference from abroad. The theory of the New England Commonwealth gradually became more political and less theological; the limits imposed upon religious freedom gradually relaxed and political freedom became more unrestrained. They were law-abiding but the laws to which they subjected themselves were of their own making. So strong, however, was the traditional respect for law and order and so conservative were they when least restrained by external authority that their legislation never tended to sap the fountains of the Commonwealth nor impair the obligations of contract. Legislation was generally along the lines of precedent, following the recognized principles of the Common Law and adhering closely to the rights and duties laid down in the great charter of English freedom. When under new conditions new legislation was needed for which no precedent existed, known to the law-makers, the ample shield of the spirit of the Common Law and of Magna Charta was invoked to cover them. So in the interpretation of the law by the judge on the bench, if statute law did not exist to meet the cause in action, the Common Law was so interpreted as to apply and

the spirit of jurisprudence came to the relief of the dispenser of justice. And this was exactly what happened hundreds of years before in Wessex and Kent and East Anglia and Mercia and Northumbria. The principles of law and equity had grown up silently in the community enlarging in their applications as new conditions arose and became imbedded in the hearts of Englishmen ages before they found articulate expression in the laws of Ina and Offa, Alfred and Ethelred; ages before the charters of John and Henry and Edward placed the seal forever on the recognized and inalienable rights of Englishmen. This spirit and these traditions they brought with them to the new world. England alone of all the world could supply such colonists and England alone of all the world could continue without exhaustion the work of colonization on such a scale as to assure ultimate success. The puritans of the North and the Cavaliers of the South, reinforced in later times by the sturdy Scot from the Lowlands and the Highlands and later on by the equally hardy Scots of Ulster formed the basis of American nationality and a nobler ancestry the world has never seen. The characteristics of the first settlers remain the predominant characteristics of the typical American of today, and however affected by subsequent infusions from continental sources remains in large measure unmodified. This propotency of race and of blood is manifest in every phase of the history of the American people. Only people of Anglo-Saxon blood, Anglo-Saxon endurance, and Anglo-Saxon devotion to freedom

could have maintained and carried the struggle for independence to a successful issue against the power of the mother country. Only people of Anglo-Saxon blood could have maintained and successfully concluded the second trial of strength with the might of the British Empire in the war of 1812. Only the descendants of this heroic stock could have routed the armies of Mexico and planted the stars and stripes upon the ramparts of Chapultepec and Churubusco and in that terrific contest fought out forty years ago for the maintenance of the integrity of the Republic, when armies larger than those engaged at Marengo, Wagram, Austerlitz, Jena or Waterloo met each other on the field of battle, the men on both sides who led them to victory or defeat, and the men who followed them were in the main the descendants of the pioneers whose ancestors had lived for thirty generations within the four seas of Britain. Lee and Jackson and Stuart and Hampton and Gordon, McClellan and Grant and Sheridan and Sherman and Thomas are as thoroughly British names as Cromwell and Marlborough and Wolf and Wellington. With this people, its noble ancestry, its inspiring traditions, its stupendous achievements and its glorious history, I would have the most ample provisions made in every institution in this Association for its students to become acquainted. The educated American should know the history of his own people in itself and in its relations. We go back beyond 1776, beyond 1620 and 1607. The roots of our being are identical with those of the patriots who worked out

patiently and laboriously for 600 years the problems of parliamentary government, of the relation of the subject to the state, of taxation to representation, of the coordination of liberty and authority. English history before 1776 belongs as much to Americans as to Englishmen, and American institutions are unintelligible if dis severed from their rational relationship. The American constitution without the prior existence of Magna Charta, Habeas Corpus and the Bill of Rights would have been impossible.

When Lord Beaconsfield returned from the Congress of Berlin he gave utterance to a felicitous expression which roused to an intense self consciousness the hearts of the British people. "Libertas et Imperium" struck a note which vibrated through the British Isles. They felt that they had achieved Empire through freedom. I would strike a kindred note here today. I would have this Association adopt the motto: "Education and Empire." Freedom we have. Freedom forms the basis of our national existence, the air which it breaths, the inspiration of the life which it lives. But the inspiration and the vitality of freedom and of Empire must henceforth be intelligence, developed, strengthened, exalted, purified.

Not long since a conference of allied colonial universities was held in London. There were present men like Lord Kelvin and the leader of the House of Commons, eminent representatives of learning and science, men high in authority in the old uni-

versities of the mother country and men of distinction in the more recently established universities of the King's over sea dominions. Mr. Balfour announced the object of the meeting to be "An alliance of all the universities that in an increasing measure are feeling their responsibilities not merely for training the youth which is destined to carry on the traditions of the British Empire but also to further those great interests of knowledge, scientific research and culture without which no Empire, however materially magnificent, can really say that it is doing its share in the progress of the world." What the statesman of the kindred people beyond the Atlantic seek to do we have already been doing for years. This Federation of Colleges and Universities has been addressing itself to realize the objects set forth in the language just quoted, viz: "the furtherance of the great interests of knowledge, scientific research and liberal culture without which no Empire, however materially magnificent can really say that it is doing its share in the progress of the world." No such federation of educational agencies and activities as this association of ours has ever been seen. It is the first, the greatest, the most far reaching in its aims and the most successful in its results. It has long since passed beyond the embryonic stage. Embracing within its scope all that is valuable in the old and incorporating it with new ideals it presents to the nation and the world a system complete because all embracing and inspired by the vigor of youth goes on conquering and to conquer.

"To the solid ground of nature trusts the mind which builds for aye."

American institutions have materially influenced the principles of government in the old world; American education is accomplishing a similar work in influencing the educational system of Europe. Germany has felt its power—great though Germany be in intellect, in pure science, in discovery; England frankly acknowledges her obligations to American methods in university training and in the application of science to industrial production; Russia in her commercial exclusiveness pays a reluctant tribute to American enterprise through her policy of obstruction. All these are legitimate sources of an honorable **pride, and all the more gratifying because the Federation of American Colleges and Experiment Stations is the exponent of the idea.** The precedence which we have won we must maintain. Hoc Signo Vinces. State and Nation are alike interested in the existence and development of the units which form this organization; and State and Nation will respond with equal liberality in order to maintain the most comprehensive, most economic, most fruitful educational activity which human wisdom ever devised.

From a glorious past, through a marvellous present, to an illustrious future—the transition is natural and easy. If the growth and prosperity witnessed within the memory of living persons have been unexampled, it is because conditions, intellectual, moral, religious, social, material and political existed such as never existed

before. Some of these will continue, others will undergo material modification. The intellect, through scientific discovery and liberal culture will probably become more keen and more intense in its activity. Social conditions and relations will change as they are changing now. The rich will become relatively richer and the poor perhaps poorer. A greater mastery will be obtained over the powers of nature, subordinating them to human control and to human utility. The visible embodiments of the collective will in civil government, executive, legislative and judicial will be determined by the moral and religious ideas and convictions which prevail. If there be wholesome, vital, intense and strong social and political convictions, the relation of the individual to the community, of the citizen to the State will be determined by honest and rational means for the attainment of high and honorable ends. Upon the moral and religious life of the future will depend the future greatness of the great republic. The vigorous beliefs in which the fathers and the mothers of the olden times were brought up have without doubt changed. Is it for the better or for the worse? Let us hope that human elements only have been eliminated and all that is divine is retained; that the dross and the tin have been purged and that the gold remains. But somehow the shadow of a doubt sometimes crosses the mind that not the form but the essence has changed, that:

"Now there are new religions, many the codes and the creeds



(16)

Many the quibbling changes to fit
 with our fanciful needs
 All of them waxing milder; waning
 in strength and tone
 None of them stern and sturdy; none
 of them stand alone
 None like the old religions—those
 that the fathers made
 Built on the fearless basis—the God
 of the unafraid.”

The moral and religious tone of the country upon which the greatness of the nation will depend will be influenced largely by the moral and religious tone which pervades the Colleges and universities which compose this Association. Let us see to it that the God of our fathers—reliance upon whom carried them through the throes and perils of the birth of the Nation is not forgotten; let us see that “the Divinity that shapes our ends rough hew them how we may” is still recognized and revered—conscious that amid human affairs there is a power that works for progress and for righteousness and that the great lesson of all history, specially emphasized and exemplified in our own is the realizing of the divine in the human; of the infinite in the finite; of the eternal in the temporal; that,

“Not in vain the Nation strivings
 Nor by chance the currents flow
 Error mazed yet truth directed
 To their destined goal they go.”

We can picture to ourselves ere the close of this century a nation of seven hundred millions of people, Christian, peaceful, rich and happy—

with realized industrial, agricultural and commercial wealth, tenfold that of the present, with a predominant influence in the councils of the world, with a fiscal system light in its burdens, with income balancing expenditure, with laws just and equitably administered, with ignorance banished, crime restrained and pauperism non-existent; with the relations of wealth and labor rightfully adjusted, and above all with a deep and pervading sense of the fatherhood of God and the brotherhood of man. We can fancy these Colleges and Universities with endowments counted by millions and students by thousands—recognized as the prime factors in individual and national wealth and greatness. Venerable abodes of learning diffusing through their sons and daughters an enlightenment and culture pervaded by a deep religious sense, enlightened by science and a science leavened and glorified by religion. We can think of them as the depositories of discovered truth whence the pilgrims of every kindred and clime recruit their stores for the enlightenment of mankind; as beacons whose illuminating beams irradiate every continent and transcend every sea. Then shall we realize the vision of the Hebrew Prophet, “Who are these that fly as a cloud and as doves to their windows; their sons shall come from afar and their daughters be nursed at thy side and I will make the place of my feet glorious.”

Happy land, happy people, yea happy is that people whose God is the Lord.

