SCIENCE

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INAUGURAL ADDRESS OF PRESIDENT BUTLER, OF COLUMBIA UNIVERSITY.

FOR these kindly and generous greetings I am profoundly grateful. To make adequate response to them is beyond my power. The words that have been spoken humble as well as inspire. They express a confidence and hopefulness which it will tax human capacity to the utmost to justify, while they picture a possible future for this University which fires the imagination and stirs the soul. We may truthfully say of Columbia, as Daniel Webster said of Massachusetts, that her past, at least, is secure; and we look into the future with high hope and happy augury.

To-day it would be pleasant to dwell upon the labors and the service of the splendid body of men and women, the University's teaching scholars, in whose keeping the honor and the glory of Columbia rest. Their learning, their devotion, and their skill call gratitude to the heart and words of praise to the lips. It would be pleasant, too, to think aloud of the procession of men which has gone out from Columbia's doors for well-nigh a century and a half to serve God and the State; and of those younger ones who are even now lighting the lamps of their lives at the altar-fires of eternal youth. Equally pleasant would it be to pause to tell those who

labor with us—North, South, East and West—and our nation's schools, higher and lower alike, how much they have taught us, and by what bonds of affection and fellow-service we are linked to them.

All these themes crowd the mind as we reflect upon the significance of the ideals which we are gathered to celebrate; for this is no personal function. The passing of position or power from one servant of the university to another is but an incident; the university itself is lasting, let us hope eternal. Its spirit and its life, its usefulness and its service, are the proper subjects for our contemplation to-day.

The shifting panorama of the centuries reveals three separate and underlying forces which shape and direct the higher civilization. Two of these have a spiritual character, and one appears to be, in part at least, economic, although clearer vision may one day show that they all spring from a common source. These three forces are the church, the state and science, or, better, scholarship. Many have been their interdependences and manifold their intertwinings. Now one, now another, seems uppermost. Charlemagne, Hildebrand, Darwin are central figures, each for his time. At one epoch these forces are in alliance, at another in opposition. Socrates died in prison, Bruno at the stake. Marcus Aurelius sat on an emperor's throne, and Thomas Aquinas ruled the mind of a universal church. All else is tributary to these three, and we grow in civilization as mankind comes to recognize the existence and the importance of each.

It is commonplace that in the earliest family community, church and state were one. The patriarch was both ruler and priest. There was neither division of labor nor separation of function. When development took place, church and state, while still substantially one, had distinct organs of expression. These often clashed, and the separation of the two principles was thereby hastened. As yet scholarship had hardly any representatives. When they did begin to appear, when science and philosophy took their rise, they were often prophets without honor, either within or without their own country, and were either misunderstood or persecuted by church and state alike. But the time came when scholarship, truth-seeking for its own sake, had so far justified itself that both church and state united to give it permanent organization and a visible body. This organization and body was the university. For nearly ten centuries—a period longer than the history of parliamentary government or of Protestantism—the university has existed to embody the spirit of scholarship. Its arms have been extended to every science and to all letters. It has known periods of doubt, of weakness and of obscurantism; but the spirit which gave it life has persisted and has overcome every obstacle. To-day, in the opening century, the university proudly asserts itself in every civilized land, not least in our own, as the bearer of a tradition and the servant of an ideal without which life would be barren and the two remaining principles which underlie civilization robbed of half their power. To destroy the university would be to turn back the hands upon the dial of history for centuries; to cripple it is to put shackles upon every forward movement that we prize—research, industry, commerce, the liberal and practical arts and sciences. To support and enhance it is to set free new and vitalizing energy in every field of human endeavor. Scholarship has shown the world that knowledge is convertible into comfort, prosperity and success, as well as into new and higher types of social order and of spirituality. 'Take fast hold of instruction,' said the wise man; 'let her not go; keep her; for she is thy life.'

Man's conception of what is most worth knowing and reflecting upon, of what may best compel his scholarly energies, has changed greatly with the years. His earliest impressions were of his own insignificance and of the stupendous powers and forces by which he was surrounded and ruled. The heavenly fires, the storm-cloud and the thunderbolt, the rush of waters and the change of seasons, all filled him with an awe which straightway saw in them manifestations of the superhuman and the divine. Man was absorbed in nature, a mythical and legendary nature, to be sure, but still the nature out of which science was one day to arise. Then at the call of Socrates, he turned his back on nature and sought to know himself, to learn the secrets of those mysterious and hidden processes by which he felt and thought and acted. The intellectual center of gravity had passed from nature to man. From that day to this the goal of scholarship has been the understanding of both nature and man, the uniting of them in one scheme or plan of knowledge, and the explaining of them as the offspring of the omnipotent activity of a creative spirit, the Christian God. Slow and painful have been the steps toward the goal, which to St. Augustine seemed so near at hand, but which has receded through the intervening centuries as problems grew more complex and as the processes of inquiry became so refined that whole worlds of new and unsuspected facts revealed themselves. Scholars divided into two camps. The one would have ultimate and complete explanations at any cost; the other, overcome by the greatness of the undertaking, held that no explanation in a large and general way was possible. The one camp bred sciolism; the other narrow and helpless specialization.

At this point the modern university problem took its rise; and for over 400 years the university has been striving to adjust its organization so that it may most effectively bend its energies to the solution of the problem as it is. For this purpose the university's scholars have unconsciously divided themselves into three types or classes—those who investigate and break new ground; those who explain, apply, and make understandable the fruits of new investigation; and those philosophically minded teachers who relate the new to the old, and, without dogma or intolerance, point to the lessons taught by the developing human spirit from its first blind gropings toward the light on the uplands of Asia or by the shores of the Mediterranean, through the insights of the world's great poets, artists, scientists, philosophers, statesmen and priests, to its highly organized institutional and intellectual life of to-day. The purpose of scholarly activity requires for its accomplishment men of each of these three types. They are allies, not enemies; and happy the age, the people, or the university in which all three are well represented. It is for this reason that the university which does not strive to widen the boundaries of human knowledge, to tell the story of the new in terms that those familiar with the old can understand, and to put before its students a philosophical interpretation of historic civilization, is, I think, falling short of the demands which both society and university ideals themselves may fairly make.

Again a group of distinguished scholars in separate and narrow fields can no more constitute a university than a bundle of admirably developed nerves without a brain and spinal cord can produce all the activities of the human organism. It may be said, I think, of the unrelated and unexplained specialist, as Matthew Arnold said of the Puritan, that he is in great danger; because he imagines himself in possession of a rule telling him the *unum necessarium,* or one thing needful, and that

he then remains satisfied with a very crude conception of what this rule really is, and what it tells him, and in this dangerous state of assurance and self-satisfaction proceeds to give full swing to a number of the instincts of his ordinary self. And these instincts, since he is but human, are toward a general view of the world from the very narrow and isolated spot on which he stands. Only the largest and bravest spirits can become great specialists in scholarship and resist this instinctive tendency to hasty and crude philosophizing. The true scholar is one who has been brought to see the full meaning of the words development and history. He must, in other words, be a free man as Aristotle understood the term. The free man is he who has a largeness of view which is unmistakable and which permits him to see the other side; a knowledge of the course of man's intellectual history and its meaning; a grasp of principles and a standard for judging them; the power and habit of reflection firmly established; a fine feeling for moral and intellectual distinctions; and the kindliness of spirit and nobility of purpose which are the support of genuine character. On this foundation highly specialized knowledge is scholarship; on a foundation of mere skill, deftness or erudition, it is not. The university is concerned with the promotion of the true scholarship. It asks it in its scholars who teach; it inculcates it in its scholars who learn. It believes that the languages, the literatures, the art, the science and the institutions of those historic peoples who have successively occupied the center of the stage on which the great human drama is being acted out, are full of significance for the world of to-day; and it asks that those students who come to it to be led into special fields of inquiry, of professional study or of practical application, shall have come to know something of all this in an earlier period of general and liberal studies.

Mr. Emerson's oration before the oldest American society of scholars, made nearly sixty-five years ago, is the magnetic pole toward which all other discussions of scholarship must inevitably point. His superb apology for scholarship and for the scholar as Man Thinking opened an era in our nation's intellectual life. The scholar as Mr. Emerson drew him is not oppressed by nature or averse from it, for he knows it as the opposite of his soul, answering to it part for part. He is not weighted down by books or by the views which Cicero, which Locke, which Bacon have given, for he knows that they were young men like himself when they wrote their books and gave their views. He is not a recluse or unfit for practical work, because he knows that every opportunity for action passed by is a loss of power. The scholar, in short, as the university views him, and aims to conserve and to produce him and his type, is a free man, thinking and acting in the light of the world's knowledge and guided by its highest ideals.

In this sense the university is the organ of scholarship, and in this sense it aims to be its embodiment. The place of scholarship has been long since won, and is more widely recognized and acknowledged than ever before. The church and the state, which first gave it independence, are in close alliance with it and it with them. The three are uniting in the effort to produce a reverent, well-ordered and thoughtful democratic civilization in which the eternal standards of righteousness and truth will increasingly prevail.

But a university is not for scholarship alone. In these modern days the university is not apart from the activities of the world, but in them and of them. It deals with real problems, and it relates itself to life as it is. The university is for both scholarship and service; and herein lies that ethical equality which makes the uni-

versity a real person, bound by its very nature to the service of others. To fulfil its high calling the university must give, and give freely, to its students, to the world of learning and of scholarship, to the development of trade, commerce and industry, to the community in which it has its home, and to the state and nation whose foster-child it is. A university's capacity for service is the rightful measure of its importunity. The university's service is to-day far greater, far more expensive, and in ways far more numerous than ever before. It has only lately learned to serve, and hence is has only lately learned the possibilities that lie open before it. Every legitimate demand for guidance, for leadership, for expert knowledge, for trained skill, for personal services, it is the bounden duty of the university to meet. It may not urge that it is too busy accumulating stores of learning and teaching students. Serve it must, as well as accumulate and teach, upon pain of loss of moral power and impairment of usefulness. At every call it must show that it is

Strong for service still and unimpaired.

The time-old troubles of town and gown are relics of an academic aloofness which was never desirable and which is no longer possible.

In order to prepare itself for efficient service the university must count in its ranks men competent to be the intellectual and spiritual leaders of the nation and competent to train others for leadership. Great personalities make great universities. And great personalities must be left free to grow and express themselves, each in his own way, if they are to reach a maximum of efficiency.

Spiritual life is subject neither to mathematical rule nor to chemical analysis. Rational freedom is the goal towards which the human spirit moves, slowly but irresistibly, as the solar system towards a point in the constellation Hercules; and national freedom is the best method for its movement. Moreover, different subjects in the field of knowledge and its applications require different approach and different treatment. It is the business of the university to foster each and all. It gives its powerful support to the learned professions, whose traditional number has of late been added to by architecture, engineering and teaching, all of which are closely interwoven with the welfare of the community. It urges forward its investigators in every department and rewards their achievements with the academic laurel. It studies the conditions under which school and college education may best be given, and it takes active part in advancing them. In particular, it guards the priceless treasure of that liberal learning which I have described as underlying all true scholarship, and gives to it full-hearted care and protection. These are all acts of service direct and powerful.

The university does still more. It lends its members for expert and helpful service to nation, state, and city. University men are rapidly mobilized for diplomatic service, for the negotiation of important treaties, for the administration of dependencies, for special and confidential service to the Government, or some department of it, and, the task done, they return quietly to the ranks of teaching scholars, as the soldiers in the armies of the war between the States went back to civil life without delay or friction. These same university men are found foremost in the ranks of good citizenship everywhere and as laymen in the service of the Church. They carry hither and yon their practical idealism, their disciplined minds, and their full information, and no human interest is without their helpful and supporting strength. It is in ways like these that the

university has shown, a thousand times, that sound theory and correct practice are two sides of a shield. A theorist is one who sees, and the practical man must be in touch with theory if he is to see what it is that he does.

What the future development of the great universities is to be perhaps no one can foresee. But this much is certain. Every city which because of its size or wealth or position aims to be a center of enlightenment and a true world-capital must be the home of a great university. Here students and teachers will throng by the mere force of intellectual gravitation, and here service will abound from the mere host of opportunities. The city, not in its corporate capacity, but as a spiritual entity, will be the main support of the university, and the university, in turn, will be the chief servant of the city's higher life. True citizens will vie with each other in strengthening the university for scholarship and for service. In doing so they can say, with Horace, that they have builded themselves monuments more lasting than bronze and loftier than the pyramids reared by kings, monuments which neither flood nor storm nor the long flight of years can overthrow or destroy. Sir John de Balliol, doing a penance fixed by the Abbot of Durham; Walter de Merton, making over his minor house and estates to secure to others the advantages which he had not himself enjoyed; William of Wykeham, caring generously for New College and for Winchester school; John Harvard, leaving half his property and his library to the infant college by the Charles, and Elihu Yale, giving money and his books to the collegiate school in New Haven, have written their names on the roll of the immortals and have conferred untold benefits upon the human race. Who were their wealthy, powerful, and high-born contemporaries? Where are they in the grateful esteem of the generations that have come after them? What service have they made possible? What now avails their wealth, their power, their high birth? Balliol, Merton, Harvard, Yale are names known wherever the English language is spoken, and beyond. They signify high purpose, zeal for learning, opposition to philistinism and ignorance. They are closely interwoven with the social, the religious, the political, the literary history of our race. Where else are there monuments such as theirs?

Scholarship and service are the true university's ideal. The university of today is not the 'home of lost causes, and forsaken beliefs, and unpopular names, and impossible loyalties.' It keeps step with the march of progress, widens its sympathies with growing knowledge, and among a democratic people seeks only to instruct, to uplift and to serve, in order that the cause of religion and learning, and of human freedom and opportunity, may be continually advanced from century to century and from age to age.

TYPES AND SYNONYMS.

From the literary standpoint the existence of many names for the same or closely similar objects or ideas is thought to enrich language and to conduce to facility, elegance and accuracy of expression. In systematic biology, however, synonyms figure as superfluous designations which furnish no useful or welcome additions to the vocabulary of science; biological synonymy is a most burdensome legacy of ignorance and confusion, requiring constant revision and readjustment, and yielding no adequate returns for the labor which the naturalist must expend in historical or merely antiquarian research. Indeed, the study of systematic biology appears to be little more than a 'battle of the synonyms' when its most conspicuous