# Benjamin Banneker Association, Inc.
# 2006 Annual Breakfast

## Keynote Address

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Good morning and thanks for your kind introduction! I am pleased to join this talented, committed and eclectic group of leaders on the occasion of the 20 anniversary of this critically important association. Your founding vision translated into explicit goals (i.e. a) to create an environment to ensure an appropriate mathematics development of all learners; b) to foster in each classroom a climate that inspires and supports the achievement of all learners; c) to encourage professional excellence and accountability by teachers and administrators; d) to encourage the intellectual emancipation of all learners; e) to actively participate in mathematics education- activities on all levels; f)to assume the responsibility to make a difference in the education of Black youth; and g) to secure the necessary self development requisite to provision of leadership to the community and the educational system) was daunting- at the time of formulation- and remain so today. Each component of the mission statement is appropriately and substantive framed and, in the aggregate, the categorical elements bespeak of a strategy characterized by much intellectual merit and are quite expansive as regards implementation particulars. I think it is not possible to over emphasize the high quality thinking you invested in the explication of the Association's intent; for 20 years ago, and even more the case today, the possession of an abundance of information and/or knowledge allows one to relate the information, but not envision the consequences. Stated differently, being wise is a much valued attribute, but inadequate without the "gift of foresight". Both encyclopedic knowledge and insightfulness are important; however, it is the purposeful and stringent conjunction of the two that yields the truly valued attribute/disposition/implementation enabler! Thus, your substantial talents, powerful vision, strategic intent, and efficacy -premised actions and professional undertakings are elevated to a greater level of criticality than that which obtained 20 years ago; for, the enormous intellectual merit, comprehensiveness, and the abundant definitional rigor, of the aggregate mathematics education program notwithstanding, the K- 12 mathematics learning outcomes and the quantitative and qualitative dimensions that attend Blacks in the mathematics professions- at all levels- are the decidedly obverse of the Association's quite noteworthy intent.

WHY? With the requisite degree of precision, do we know the answer this question? To frame this mater in the extant national and global context has not the issue of understanding the full dimensions of the question- poised- progressed from a being an exhortation -filled desirable good to an imperative for Black folk?

I shall return this these questions, but let me emphatically convey both sincere congratulations and deeply held professional regard for enormous commitment of time and effort each of you have given the Banneker Association, especially those of you who have served in leadership role and had directed the impressive set of Banneker programs over the past two decades! Your continued leadership is enormously important to task that faces us at present and in the neat term future and I am sure that you will do so and thereby truly build on your legacy!

You certainly selected a challenging figure as the exemplar of the work you sought to accomplishments in mathematics and its conjunction with science, engineering and technology, writ large! That Benjamin Banneker was Andrew Ellicott's principal assistant in the historic survey of Washington, DC, a pioneering almanac publishers, a collector and disseminator of "horrible dreams", and, in the context, a successful farmer is, in the aggregate, an impressive set of accomplishments by anyone who lived in essentially underdeveloped America in period of 1731-1806, without any reference to his being Black! The aforementioned is not the point I desire to make; rather, is it simply that he was a genius! As such, he expressed that genius in mathematical studies in an effort explicate the formation and operations of the solar system. Specifically, with the benefit of formal education, telescopes and other necessary instruments and ,most important of all, the opportunity, he accurately predicted the light patterns occasioned by multiple planets per star and the dimensionality of light relative to time and space- nearly 1.5 centuries in advance of other astronomers and the seminal studies of Einstein nearly a century later! It is sheer intellectual amazement to understand that it was not until the advent of the NASA orbiting Hubble Space Telescope in the 1990s that final confirmation of some of his extraordinary scientific predictions were accomplished! Moreover, only now is work, underway via the NSF funded Laser Interferometer Gravitational Observatory( Detector), seeking to confirm gravitational waves predicted by Einstein, to which aspects of Banneker's pioneering and encyclopedia work was relevant!

When I contemplate his other studies that were undoubtedly lost in the destruction of his cabin upon his death, I can see a Black genius -nightly- lost in the vastness of brilliance, time alone, space, and dreams) -always knowing that outside his cabin lie racist keepers of the status quo.

So, he wrote to Thomas Jefferson and said--" I apprehend you will readily embrace every opportunity to eradicate that train of absurd and false ideas and opinions which so prevails with respect to us---"

In your mind's eye, fast forward to April, 2006 and, as regards Blacks in the study and learning of mathematics, to whom might such profound words be conveyed today? The

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President; the any K-12 state, district, or school leader; any sociopolitical gatekeeper of the barely closed apartheid era of the late 18 and 20 centuries; mathematics knowledge non-conversant teachers of any or all descriptors, or to the nation's higher education enterprise, a sector which - according the a recent article in The Journal of Blacks in Higher Education - as a total national enterprise-, produced not a single African American Ph.D. recipient in astronomy or astrophysics! History can be informative as well as redundant, i.e., Banneker's 1804 was faithfully repeated two centuries later!

Again, why?

I don't presume to know the answer, but my thoughts on the questions are influenced by the following sampling of national transactions post Banneker's death in 1806.

The U.S. Supreme Court issued its famous "Separate But equal Doctrine", the Plessy case, in 1896; Jim Crow, apartheid is a more accurate term, laws were being rapidly passed and implemented throughout the South during the 1880s and 1890s. Enabling the impacts of the States' apartheid laws was the beginning of 148 years of assorted political- legal machinations by the U.S. Supreme Court purporting to address the rights of all citizenships to secure public K-12 education absent constraints. As brilliantly addressed in Peter Irons' recent book, "Jim Crow's Children: The Broken Promise of the Brown Decision", these intellectually asymmetric rulings commenced in 1847 when an African American, Benjamin Roberts, filled a lawsuit in Boston seeking legal permission for his daughter to attend the school nearest her home — which was denied - to Jenkins vs. the Kansas City School Board in 1995, in which Jenkins sought the maintenance of judicial oversight of the re-segregated school district, which was, predictably, also denied.

Thus, in reflecting on Banneker's life and work, what are powerful lessons that might enable a better future in the 21 century? I think those lessons must include: (a) electing

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the domain of high quality performance even in view of the persistence of stereotypes and group practices; and (b) fully discounting that grand collection of anthropological, sociological and psychological academic substance or paraphernalia, depending on one's point of view or objective, that speaks of the acceptance of something other than excellence in the instance of minorities in the scientific and technological enterprise.

Regarding the last point, it is appropriate to set out the challenge; for the world of the 2 century — in which we now participate — is more complex, more demanding, regrettably for those already underrepresented in the enterprise,

more uncertain. This challenging dynamic is owing principally to changes that are occurring at rates unlike any previous era and they are impacting all facets of national life at enormous rates. Consider the following: the World's knowledge base now doubles at a rate measured in less than 10 years; however, in a few decades, the knowledge doubling time is estimated to be reduced to a few months. Thus, in this era in which knowledge has become a most valuable commodity, one must settle the highly personal matter of competencies and capacities vis-à-vis the aforementioned intergenerational beliefs and practices that served to otherwise reduce performance to the level "decreed" by societal paraphernalia.

All of the above must be examined against extant national landscape; a reality characterized by entry into the presumed color blind society — owing to someone's much expansive imagination — at exactly the time that the combined impacts of a) the aforementioned science and engineering (S &E) knowledge explosion, b) technology enabled transactions, including learning modalities, and c) the redefinition of workplaces



and effects of a global S & E human resource base, in the aggregate a set of interactive forces yielding the knowledge era, have served to render substantive participation in the S & E a mandatory activity! Consider the implication of:

a) the creation of genomics as an interdisciplinary area of study;

b) the rapid transition from supercomputing centers to virtual partnerships for advanced computing to networking and informational technology/distributed learning/discovery entities/nodes;

c) the advent of terascale computing;

d) the ability to simulate a single microsecond of protein folding;

e) the quantum representation of chemical reactions involving only three to four atoms;

f) the feasibility of measuring a single atom;

g) the conjunction of neuroscience, cognitive sciences and learning technologies to yield new understanding of how information is processed and how humans learn;

h) complexity of natural systems and system science;

    a. nanoscience, engineering and technology- advanced materials

i) the discovery of the multi-planet solar system and new-age astrophysics.

Each of the aforementioned studies, distinguished by the inherent complexity, require a substantial infusion of applied mathematics, especially for modeling, simulations, etc the attendant complex processes).

I therefore, suggest that- based on your successful undertakings (e.g., extensively researched and fully translatable mathematics education programs- you consider

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designing and participating in a national effort, designed by and for the underserved, to undertake a truly first of its kind journey — to seek to ameliorate one of the most intractable issues resident in the American society for nearly two centuries, the existence and operations of the national effort, No Child Left Behind notwithstanding! Stated differently, I submit that in today's knowledge/information driven, increasingly undemocratic society, that science, mathematics and technology education, competently and equitably delivered, represent the best hope to reverse the unproductive- often vulgar, some times, criminal, status quo!

For in the post Civil Rights era, the new battles are being acted out within the rural sectors, cities and states throughout the country and extant mathematics and science performance of too many of the minority students who matriculate therein signals economic demise; for the lack of participation in the scientific and technological enterprise equals limited employment and, therefore, less then full citizenship. As painful as it might be to accept, this is the new reality! Let there be no doubt; it is the new imperative!

As a context for your quite exemplary mission statement/goals, above I suggest the necessity to frame by the employment of the sociopolitical and legal constraints as the national backdrop. I make an additional suggestion bearing the overarching context by inviting you to "look out the window"! See, that according to Thomas Friedman, "The World is Flat, after all". In this recent book, "The World is Flat: A Brief History of the Twenty-first Century", Friedman powerfully noted that — owing to the IT revolution in general, the advent of Netscape's browser and massive fiber-optics

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telecommunication cables, in particular, there now exist a "global, web-enabled playing field for multiple forms of collaboration for research and work in real time, independent" of geography, distance, and, in the future, language Says Craig Mundie, chief technical officer for Microsoft," it is the creation of this platform, with many unique attributes, that is the truly important sustainable breakthrough that makes what you call the flattening of the world possible".

In this flat operative circumstance, it is no longer being in the game; rather, the new issue- globally framed-, is how fast to you run — at what efficiency? — at what productivity index?

In closing, we must do more than recite the words of an individual I revere as much as you do Banneker, Dr. George Washington Carver's (Banneker's analogue in genius, life, work, and constrained acknowledgement of by Thomas Jefferson's wise counsel that "95% of failures come from people who make excuses"; rather, we must, "as in Mel Gibson's Sir William Wallace in the 14

century Scotland take the sterling Bridge of doubt, racism and neglect”... and by the rigor of our scholarship, the quality of our discoveries and innovations , the powerfulness of mathematics learning by all students, finally convince all on — lookers —“eradicate that train of absurd and false ideas and opinions which so prevail with respect to us”

Thank you and, again, congratulation on your 20th anniversary!