



**AMERICAN
UNIVERSITY
OF BEIRUT**

2023 Commencement Exercise

June Bowman Nasrallah

Beirut, Friday, June 9, 2023

President Khuri, Members of the Board of Trustees, Members of the Faculty,
Honored Guests, Graduates, Family and Friends

I am deeply honored to receive an Honorary Doctorate from AUB, a university that has played, and continues to play, an outsized role in fostering and developing the talent of so many students from Lebanon, the Arab world, and beyond. This recognition is particularly meaningful for me. My undergraduate years on this beautiful campus are among my most memorable, and I credit AUB for laying a strong foundation for my scientific career. I must also extend this recognition to the incredible undergraduate and graduate students, post-doctoral fellows, and colleagues, without whom our work at Cornell University would not have been possible.

But this day is all about you, the graduates. Congratulations on your achievements! And congratulations to your proud families and friends who lent their support and encouragement when you most needed them. Of course, completing your degree is not an end but a beginning. AUB has prepared you well for the next chapter of your career. An AUB education, with its stellar reputation around the world, provides many opportunities and opens many doors. No doubt, it has shown you the value of creative and independent thinking, of challenging conventional wisdom, taking calculated risks, and learning from failure. And it has demonstrated the importance of collaboration in teams that bring together diverse perspectives and complementary experiences. Together, these skills can lead to unique insights and produce the breakthrough solutions required for meeting the challenges of a rapidly

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changing world.

As you are well aware, these challenges are many, from conflict and inequality to pandemics, from the unknown impacts of artificial intelligence to the most existential threat of all, climate change. We are already witnessing the dire consequences of inaction on climate: melting glaciers, extreme and unpredictable storms, flooding, drought, wildfires, and migration from places where people can no longer live.

So, what can be done? Some look to the 100 billion stars in our Milky Way galaxy and dream of finding and colonizing a habitable planet. But we know that there is no other home for us. Pragmatists assert that technology got us into this mess and technology will get us out of it. Indeed, at this point, technological innovations are essential, as we have seen from the development of renewable sources of energy and strategies for carbon capture and sequestration. From a biologist's perspective, two seemingly incompatible yet interconnected goals must be achieved: to ensure global food security and to slow the rapid and irreversible loss of biodiversity. On the one hand, the world population is projected to reach 10 billion in 2060 and already, close to one billion people face hunger. On the other hand, the loss of biodiversity is accelerating, and the rate of species extinction in the next quarter century is on track to equal the rate of mass extinction which marked the demise of the dinosaurs 65 million years ago. A major driver of habitat loss is agriculture, which requires increasing amounts of land, causes soil erosion and degradation, uses excessive water, and pollutes the water supply with fertilizers and other chemicals. And agriculture has historically been a major perpetrator of deforestation and the massive loss of trees which are the wellspring of life on this planet and the regulators of its climate. So, to slow habitat loss and preserve what is left of biodiversity while simultaneously producing more food on less land, agricultural practices must be made more efficient, more environmentally friendly, and more sustainable. One of several encouraging innovations is precision agriculture in which advanced technology using sensors and robotic drones allows farmers to obtain real-time data on the status of plants in a field and rapidly adjust their treatments to maximize crop yield while minimizing the use of water, fertilizers, and pesticides.

At the same time, plant geneticists and breeders are busy developing alternatives to the crop monocultures used in large-scale agriculture which are highly vulnerable to the changing environments and emerging diseases

associated with climate change. They have identified plant genes that are being targeted precisely and safely for the engineering of high yielding crop varieties having increased nutritive value, tolerance to high temperature, drought, salinity, and flooding, or resistance to pathogens and pests. There has also been a growing awareness that these desirable features are already found among the hardy wild relatives of crop plants and the highly resilient but neglected indigenous crop varieties that have been grown by small-scale farmers for generations. Seed from these plants are being systematically collected all over the world, stored in local seed banks, and sent for backup storage at subzero temperatures in the Global Seed Vault, a sort of Noah's ark for agricultural biodiversity located in the icy wilderness of the Norwegian arctic. It is fitting that Lebanon, being part of the Fertile Crescent where agriculture originated over 10,000 years ago, is involved in this effort. The International Center for Agricultural Research in the Dry Areas located in the village of Terbol near Zahleh houses an extensive repository of agrobiodiversity. Its seed bank, which is managed by AUB alumna Mariana Yazbek, contains more than 120,000 different seed samples collected from Lebanon and neighboring countries. Seed from this collection are already being used in various countries around the world for the breeding of "climate-smart" crops.

But the challenges posed by climate change require more than technological remedies. They require ethical, social, and cultural solutions as well as political will. They require your expertise, no matter your field of specialization or the career you choose, whether in the arts or sciences, agriculture, business, engineering, medicine, nursing, or public health, academia or industry, research or teaching, administration or public service. They require collective action, collaboration, and dialogue. And they require empathy towards others and awe towards the creatures and plants that share this planet with us. It is easy to despair at the enormity of the task ahead, but you will feel better by nurturing nature and celebrating its beauty and the magic of life. Heed this quote from Gibran Khalil Gibran: "Forget not that the earth delights to feel your bare feet and the winds long to play with your hair". As you embark on life's journey, remember the splendor of the snow-capped mountains, the soft waves lapping at the shore, the cooling flow of rivers. Remember the botanical garden that surrounds us, the diversity of its plants and birds, and its magnificent banyan tree. Remember the majesty of the ancient cedar trees and the burst of color on the hills and meadows in the spring. Remember that nature is resilient and will flourish if given half a chance. Join hands with others and help build a future in

which nature and people can thrive together.

The world needs your expertise, your creativity, and your passion. Be the ambassadors of knowledge and the champions of hope.

And I will end with the traditional Irish blessing:

May the sun shine gently on your face,

May the wind be always at your back,

And may the road rise up to meet you.

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