NEW JERSEY, THE INVENTION STATE

New Jersey is one of the smallest states, yet ranks 4th in total U.S. patents issued. Since 1979, its inventors have been awarded over 80,000 patents. Many of the things we see and use every day come from New Jersey's inventors past and present, male and female. The state is a microcosm of the national invention scene. New Jersey is home to many of corporate America's research laboratories. In fact, it is the place where Thomas Edison created the first research laboratory in Menlo Park. Arguably, his laboratories may have been his most significant invention. Through them, Edison showed us how to organize our thinking and creativity so that we may profit from our innovative ideas. Even today, there is a direct link between the state's robust economy and its inventive output.

Some of New Jersey's Finest

The most prolific inventor of all time, Thomas Edison, lived in New Jersey, first at Menlo Park, and later in West Orange. Edison was my boyhood hero and the reason I invent today. He accumulated 1,093 patents, a number never equaled by anyone else, and created a veritable cornucopia of products and systems. His work has been heralded in many books and articles. But most of you are well aware of Thomas Edison's diverse history of innovation.

Celebrate Innovation

As we all gather here today at NJIT to honor another group of accomplished New Jersey inventors, I would like to take you on a quick stroll down "Inventors Lane" to enhance your appreciation for the countless other innovative wonders that inventors residing in the great state of New Jersey have generated.

Every time you walk into a store to buy something, you are probably looking at products or services invented in New Jersey. When you pick up that soap to get oily stains out of your synthetic clothes, you can thank **Sue Wilson**, now retired from Colgate-Palmolive, for her work that resulted in products such as Dynamo, Punch and other popular detergents. While you are standing at a checkout counter, think about **N. Joseph Woodland** and his work with bar codes and bar code readers. When the clerk passes your product across a laser scanner, or uses a laser wand to determine the purchase price, know that **C. Harry Knowles** made that possible. You know those tags on clothing that set off door alarms, preventing folks from walking out of the store without paying? **Phillip Anderson** of Ramapo College invented those little plastic watchdogs.

Doctors recommend that before bandaging that cut on your finger, you dab on antibiotic cream to guard against infection. For that protection,

you can thank **Selman Waksman** and **Hubert Lechevalier** of Rutgers University. **Gilbert Buchalter** invented a reliable gel that connects electrodes to the body for electrocardiographs and cardiac defibrillators. High blood pressure is a serious disorder that can be treated with relatively inexpensive drugs invented by **George de Stevens. Arthur Nobile** gave aging baby boomers anti-arthritis drugs. **Sidney Pestka**

is recognized for his early work with the anti-cancer drug, Interferon. **Dominic Wiktor** may be responsible for one of your relatives being alive. He invented the Wiktor-Stent used to reconstruct damaged coronary arteries.

Log onto the Internet using a high speed DSL (digital subscriber line), and you can thank **Irwin Gerszberg** ("Mr. DSL" to his friends at AT&T.) He has 65 patents, and more on the way. Pick up your cell phone and make a clear, interference free phone call and thank **Eric Addeo** for his past work at Bell Communications Research. Those high capacity lithium batteries that allow you to talk on your cell phone for hours – give a nod to the team of **Antoni Gozdz, Jean-Marie Tarascon** and **Paul Warren** of Telcordia for their pioneering work. When speaking on today's phone, **Jim West** of AT&T Bell Laboratories and his foil-electret transducer make it possible for you to clearly hear and transmit your voice.

Let's talk radio and TV. **Lee de Forest** kicked off the electronic revolution with his invention of the triode audion tube that makes practical amplification possible and set us on a path to transistors. This all stemmed directly, believe it or not, from Tom Edison's work with light bulbs. **Edwin Armstrong** followed de Forest by inventing FM radio and the popular super heterodyne circuitry for early radio receivers. **Jack Avins** advanced Armstrong's work with his FM detector and improved radio receivers. **Vladimer Zworykin** built one of the first TV Kinescopes, a forerunner to the cathode ray tube, which was later improved upon by **Albert Rose** and **Harold Law**.

Harold B. DuMont, a pioneering TV manufacturer, was also very active in cathode ray tubes, magic eye tuners and a host of TV improvements. Then in 1947, the Bell Labs team of **John Bardeen, Walter Brittain** and **William Shockley** invented the transistor, which ushered in a tremendous miniaturization of circuitry, leading to today's computers and integrated circuits. Much of today's integrated circuit designs lead back to **Andrew Dingwall** and his 100+ patents in the CMOS integrated circuit technology. Cable television? We can thank **Isaac Blonder** and **Ben Tongue** for developing much of the electronics and systems for this communications medium.

Music and sound recording are closely allied with radio and TV. When we talk about the sound of modern music, we must recognize **Les Paul,** the man responsible for our modern musical sound. A pioneer in the design of the electric guitar and early tape recorders, Les also gave us multiple sound tracks and sound mixers that allow for the making of custom music recordings. **Jim Flanagan** of Bell Labs gave us the basis for acoustic signal processing and modern speech synthesis. Jim made it possible for throat cancer victims with larynx damage to once again speak by using a handheld synthesizer pressed against their throats. In the area of hygiene and public health, the state is also home to significant advances. **Charles F. Wallace** gave us chlorination of water, so essential to public health. **Abdul Gaffar,** with his many patents, was instrumental in bringing a variety of oral health care products to us. The most significant of which was the first antibacterial toothpaste, Colgate's Total. **Anthony Winston,** another man with many patents in health and oral care products, has given us anti-tartar toothpastes, baking soda enriched toothpastes, fungicides to protect crops, deodorizers and environmentally safe cleaners and laundry detergents.

All of this innovation and so many others were born from the hearts and minds of a long list of New Jersey inventors. As an inventor myself, I salute the past and present efforts of these courageous inventors and enthusiastically continue my involvement in and support of The R&D Council of New Jersey in their efforts to foster continued growth of research and development.

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