

**NAXOS**  
AudioBooks

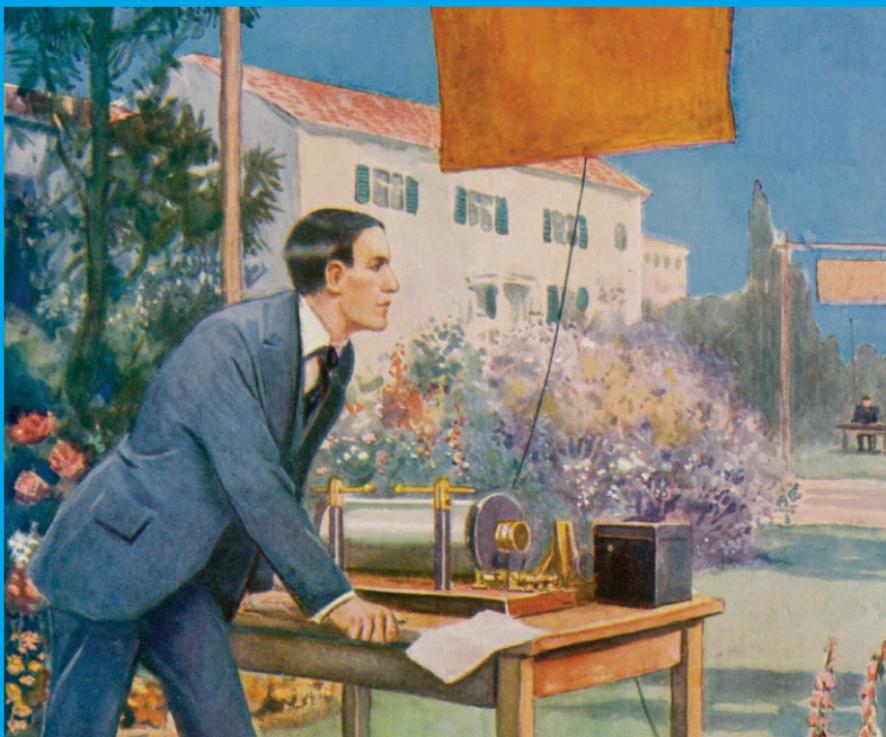
**JUNIOR  
CLASSICS**

NA241912D

David Angus  
**GREAT INVENTORS  
AND THEIR INVENTIONS**

**Gutenberg • Bell • Marconi • The Wright Brothers**

Read by **Benjamin Soames**



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|           |  |      |
|-----------|--|------|
| <b>1</b>  | <b>Introduction</b>                                  | 4:49 |
| <b>2</b>  | <b>Archimedes 287–212 BC</b>                         | 3:57 |
| <b>3</b>  | Archimedes was himself, first and foremost...        | 3:01 |
| <b>4</b>  | Of course it was in the bath that Archimedes...      | 4:56 |
| <b>5</b>  | King Heiron died in 216 BC...                        | 4:35 |
| <b>6</b>  | <b>Johann Gutenberg 1400–1468</b>                    | 4:14 |
| <b>7</b>  | North of Strasbourg lay the city of Aachen...        | 4:04 |
| <b>8</b>  | It is not hard to imagine how the idea...            | 4:01 |
| <b>9</b>  | Gutenberg had been going to print a missal...        | 4:19 |
| <b>10</b> | <b>Benjamin Franklin 1706–1790</b>                   | 3:54 |
| <b>11</b> | Benjamin headed north to New York...                 | 4:40 |
| <b>12</b> | The stove was a great success...                     | 4:35 |
| <b>13</b> | But his most famous invention came...                | 3:44 |
| <b>14</b> | Two years later he was sent back to London...        | 4:25 |
| <b>15</b> | <b>Alfred Nobel 1833–1896</b>                        | 4:52 |
| <b>16</b> | By the time Alfred Nobel was born...                 | 3:58 |
| <b>17</b> | They built a small factory, where they produced...   | 4:13 |
| <b>18</b> | In 1888 Nobel produced a new, smokeless gunpowder... | 3:08 |

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|-----------|---|------|
| <b>19</b> | <b>Alexander Graham Bell 1847–1922</b>                        | 3:54 |
| <b>20</b> | Aleck spent a year at Edinburgh University...                 | 4:09 |
| <b>21</b> | Aleck began helping his father to teach...                    | 4:05 |
| <b>22</b> | Bell's second idea was what he called the 'harp' telephone... | 3:43 |
| <b>23</b> | In 1876, it was the hundredth anniversary...                  | 4:50 |
| <b>24</b> | <b>Guglielmo Marconi 1874–1937</b>                            | 4:16 |
| <b>25</b> | When he was 20 and on holiday in the Italian Alps...          | 4:16 |
| <b>26</b> | By now, even his father was beginning...                      | 4:05 |
| <b>27</b> | On 26th April 1900, Marconi took out his patent number...     | 5:18 |
| <b>28</b> | <b>The Wright Brothers : Wilbur Wright 1867–1912</b>          |      |
|           | <b>Orville Wright 1871–1948</b>                               | 4:18 |
| <b>29</b> | Around 1890, the first bicycles were being imported...        | 5:00 |
| <b>30</b> | In 1900, after consulting the United States Weather Bureau... | 4:37 |
| <b>31</b> | When the brothers went to companies...                        | 4:15 |
| <b>32</b> | By the end of that year they had made over a hundred...       | 4:44 |
| <b>33</b> | <b>Thomas Alva Edison 1847–1931</b>                           | 4:15 |
| <b>34</b> | One day, as he was walking to the train...                    | 4:24 |
| <b>35</b> | The office manager was so delighted that he hired Edison...   | 3:38 |
| <b>36</b> | Edison had a flash of inspiration...                          | 3:43 |

**Total time: 2:33:12**

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David Angus

# GREAT INVENTORS AND THEIR INVENTIONS

Today, on television, you can watch a natural history film which shows a chimpanzee using a twig to pick ants out of their nest. You may be seeing something like the first steps that our own, apelike ancestors took on the road to modern technology. Of course, it's a big jump from a twig to a television set, but many people believe that this is so. From the earliest times, the ability of human beings to use our intelligence to solve physical problems has made us the most successful species on the planet. In no area of our history is this ingenuity more remarkable, than in mankind's almost endless capacity for invention. The chimney, the plough, the wheel, the saw, the needle: so many objects that we take for granted, are all the result of someone once having had a good idea.

However, just as important as the idea itself is the determination to see it through. Nearly every significant invention has taken a great deal of trial and error to make it actually work. One of the most famous of all

inventors, the American, Thomas Alva Edison, remarked that invention was 'one per cent inspiration and ninety-nine per cent perspiration.' It is also true that the people who have these 'inspirational' ideas can be rather surprising. Of course many of them have been tremendously clever, but often their intelligence has not been recognised at the time, because they were unconventional. What marks out an inventor is the ability to see the solution to a problem in a way that no one else has. Sometimes this can make them seem rather eccentric, and the popular view of the inventor as a bit of an 'odd ball' is often not far from the truth. Science is not quite the same thing as invention. Scientists tend to discover things that already exist in nature, while inventors create things that are entirely new. However, science and invention may often go hand in hand. For example in the nineteenth century, the discovery of the dynamo, which converted mechanical power into electricity, opened up a whole new area of invention, to those who could understand

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it. Similarly, the discovery of coal gas, from coal, and then petrol, from crude oil, led to the invention of the internal combustion engine and eventually to the motor car. By the beginning of the next century, invention had itself become an industry, with teams of researchers working together to exploit these new sciences in a practical way. In the twentieth century the extraordinary scientific theories of Albert Einstein led to the invention of nuclear reactors and the atomic bomb. One of the most contentious issues surrounding invention has always been the question of profit. Because a great deal of effort, perhaps years of work, may go into the creation of a new invention, it is not unreasonable that the inventor should expect to be properly rewarded. So inventors need to be able to protect their ideas through laws named patents. The first recorded patent was issued in 1421, by the City of Florence to Filippo Brunelleschi, the architect who built their great cathedral. In order to move and lift the heavy materials needed to do the job, he designed a barge that carried a powerful crane. The patent declared that anyone else, who built such a machine, would have to pay Brunelleschi for using his idea. Soon other countries set up their own patent laws. The first patent

granted in England was in 1449 to John Utyman, for his process of making stained glass windows. Today, there are international patent agreements, so that new inventions can be protected, usually for up to twenty years, all around the world. Although it is a lengthy business applying for a patent, (it can take several years and cost hundreds of pounds to establish that a new invention is truly original), it does not discourage a host of would be inventors from applying. On average the UK patent office receives around 25,000 new applications every year.

However, many people, and even some inventors, have always argued that new ideas should be free and for the benefit of all mankind. This dispute has raged as long as men have been inventing things and the moral questions raised by this argument will not go away. For example, one can understand the position of drug companies who say that the development of new medicines is so expensive that they must be allowed to make profits on their sales. If they did not, they argue, these wonderful new medicines would not be invented at all. But this is of little comfort to those people who cannot afford them.

And it is not only in medicine that

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these inequalities appear. We have even invented new words: 'developed' and 'underdeveloped' countries to describe those parts of the world that have, or have not, the luxury of being supported by modern technology. It is also true that while inventions, and new technologies, can change our lives, not everyone has always agreed that this is for the better. In England, in 1811, a group known as the Luddites, took to smashing equipment in the new 'factories', because they were afraid that this technology would put many of them out of work, and of course they were right. Today, many people believe that new technologies will in the end destroy the environment that

we depend on for life, and that we can already see this beginning to happen, with industrial pollution causing global warming and acid rain. As we can see, when someone has a good idea, it can be very hard to predict what the result will be. But no matter what the arguments may be against the development of new ideas, no force imaginable can actually stop people thinking. Perhaps the greatest challenge facing the next generation of inventors will be to solve the problems that have arisen from our misuse of the inventions of the past.

**Notes by David Angus**

Cover Picture: Guglielmo Marconi, Italian physicist, conducting an early experiment in wireless telegraphy in his father's garden at Bologna, courtesy Mary Evans Picture Library

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## The music on this recording is taken from the NAXOS catalogue

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| <b>ON THE WAY TO BETHLEHEM</b> (Music of the Medieval Pilgrim)<br>Ensemble Oni Wytars / Ensemble Unicorn | 8.553132 |
| <b>BRAHMS</b> ACADEMIC FESTIVAL OVERTURE<br>BRT Philharmonic Orchestra, Brussels / Alexander Rahbari     | 8.550281 |
| <b>BRAHMS</b> SYMPHONY NO 4 IN E MINOR<br>BRT Philharmonic Orchestra, Brussels / Alexander Rahbari       | 8.550281 |
| <b>DVORAK</b> SYMPHONY NO 9<br>Slovak Philharmonic Orchestra / Stephen Gunzenhauser                      | 8.550271 |
| <b>MOZART</b> OVERTURES Idomeneo<br>Capella Istropolitana / Barry Wordsworth                             | 8.550185 |
| <b>PARRY</b> AN ENGLISH SUITE<br>Capella Istropolitana / Adrian Leaper                                   | 8.550331 |
| <b>LEONCAVALLO</b> MATTINATA<br>CSR Symphony Orchestra (Bratislava) / Ondrej Lenard                      | 8.550087 |
| <b>SOUSA</b> TALES OF A TRAVELLER<br>Royal Artillery Band / Keith Brion                                  | 8.559093 |
| <b>SOUSA</b> LOOKING UPWARD SUITE<br>Royal Artillery Band / Keith Brion                                  | 8.559058 |

**Music programmed by Sarah Butcher**

David Angus

# GREAT INVENTORS AND THEIR INVENTIONS

**Archimedes • Gutenberg • Franklin • Nobel  
Bell • Marconi • The Wright Brothers • Edison**

Read by **Benjamin Soames**

Nine remarkable men produced inventions that changed the world. The printing press, the telephone, powered flight and recording and many others have made the modern world what it is. But who were the men who had these ideas and made reality of them? As David Angus shows, they were very different – quiet, boisterous, confident, withdrawn – but all had a moment of vision allied to single-minded determination to battle through numerous prototypes to produce something that really worked.

It is a fascinating account for younger listeners.



**Benjamin Soames** trained at LAMDA. Since then, he has been active on both stage and screen, appearing in the popular TV series *Sharpe* and touring worldwide in the acclaimed Cheek by Jowl production of Shakespeare's *Measure for Measure* directed by Declan Donnellan. He also reads *Tales from the Norse Legends*, *The Tale of Troy*, *The Adventures of Odysseus* and *More Tales from Greek Legends* for Naxos AudioBooks.

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2:33:12

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Edited by Sarah Butcher

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