

**Presidential opening discourse:**

**THE CULTURAL BACKGROUND OF LEIDEN**

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As the acting President of this Congress I welcome you to Leiden and to this well-known Hotel on the seashore which we chose to ensure the intimate character of this session.

It is the duty of a host to acquaint his guests with the surroundings in which they so suddenly find themselves, in this age of fast travelling aeroplanes. Here in Leiden you are not in a metropolis of millions of inhabitants, but only in a small Dutch town of not even a 100-thousand inhabitants. Thus I am not able to show you long avenues of sky-scrappers and we cannot linger in night-clubs with dancers and strip-tease; for this we must content ourselves with the healthier life on the beach. But we have a University and laboratories which are in no way inferior to those of your big cities, and we have remarkable traditions and a history, of which I shall tell you something in the hope that you may find it worthwhile.

In ancient times the low-lands consisted of swamps, intersected by broad rivers and lakes, and those parts emerging from the water were covered by woods. The water would rise and fall, and great storms would sweep across the lands threatening the sparse inhabitants with sudden death. For this reason they had to settle on higher ground such as the dunes along the coast of the Northern Sea. On the mouth of the River Rhine such dunes existed, and here in Roman times a castellum was founded and given the name Lugdunum Batavorum. This is the origin of Leiden as a settlement on the most northerly border of the Roman Empire. At that time, the river Rhine flowed not to Rotterdam but through Utrecht (Trajectum ad Rhenum) to Leiden. Here, at Noordwijk, you can see to the south from your hotel-room the nearby coastal-village of Katwijk where the old river Rhine still reaches the sea.

In the Middle Ages Leiden developed into a little town — the seat of the Dukes of Holland, of whom the castle in the centre of Leiden (het Gerecht) is now part of the Law School. In the later Middle Ages Leiden had an important cloth industry, however not as important as that of the towns of Flanders. For this reason the development of Leiden as a centre of culture came later. It was not before the end of the 15th century that world-famous painters as **Cornelis Engelbrechtsz** and **Lucas van Leyden** were born and worked in our town. At that time Holland was governed by its own Dukes, being part of the Holy Roman Empire of Charles V. **Charles V**, who was born in Ghent in Flan-

ders, spoke Dutch and regarded himself a Dutchman, and our Duke **William the Silent**, prince of Orange, was his most beloved councillor. The rights of the nobles and the towns were respected by this emperor. After his abdication, his son **Philip the Second**, born and educated in Spain, speaking only Spanish, disliked the independence and desire for freedom of Flanders and Holland. He tried to impose on them the centralized administration of Spain, and in his fanatic struggle against Reformation, he established the Spanish Inquisition in our countries. He tried to govern Flanders and Holland practically from the Escorial, imposing his will, against our charters, by means of foreign soldiers and foreign administrators. These high-handed measures were not accepted by the nobles and towns of our countries, not by Catholics and not by Protestants, and neither by William the Silent. Thus the great struggle for liberty, a war that would last for eighty years, commenced. This war, won by less than a million peasants, fishermen and merchants against the greatest military nation of the time cost the Low Countries hundreds of thousands of deaths and an enormous amount of suffering, but it cost Spain the best part of the wealth gained by the Conquest of Mexico and Peru. The turning point of this struggle was the siege of Leiden in 1574.

At that time Leiden was a small town of about 30,000 inhabitants with a small garrison, and it was besieged by a great army of regular soldiers, led by the most renowned captains of that time, i.e. the **Duke of Alva and Valdez**. During this siege of 9 months,  $\frac{1}{3}$  of the population died, from hunger and the plague. But then William the Silent had the dikes breached, and driven by a favorable wind, the water of the Northern Sea, flooded again these low-lands around Leiden.

The Spaniards had to raise the siege on the third of October and still every year this day is celebrated by the city with great jubilation and pageantry and the eating of raw herring with white bread. Four months after this glorious relief William the Silent signed the Charter of the founding of the University, by which he rewarded the heroic courage of the city.

**Motley**, the American Ambassador in Holland, who about 1900 wrote his famous book: "The Rise of the Dutch Republic" says, that if the Spaniards had captured Leiden (Haarlem, the Hague, Utrecht and Amsterdam already being in their possession) Holland would have been at their mercy. In those harbours remaining in Dutch possession, a great fleet of ships was ready to sail for America with that part of the Dutch population which preferred liberty to slavery. In that case New-York (New Amsterdam) would have been founded earlier, 100 years before **Pieter Stuyvesant** arrived, and a large Dutch colony of permanent settlers would have developed on the American continent.

I sincerely hope that our Spanish friends present at this meeting, will not resent my mentioning of this war of 400 years ago. In the meantime we had wars with all our neighbours and we suffered two other occupations — a French and a German one — and neither of them were kindhearted.

However it is a fact that at least in the opinion of each Dutch child, Spain is now the most beloved nation. For each year in the beginning of December a boat is supposed to sail from Spain with their beloved Bishop Saint-Nicolas. He brings them presents, if they behaved well or they are punished by his black page-boys if they were naughty. The night before his birthday, the 5th

of December, in every family independent of religion, there is a great feast and the good Bishop enters to distribute the presents.

The University was started with only one professor in medicine, who also taught chemistry and botany. But already in the first few years a great evolution began. A Botanical Garden (Hortus Botanicus) was created, the second in the world after Pisa, and also an Anatomic theatre (Teatrum Anatomicum), the second after Padua. The Leiden observatory (sterrenwacht) was the first public one in Europe.

The first tulip bulbs sent by our ambassador in Turkestan to Leiden were cultivated and ennobled in our botanical garden by Clutius and Clusius. From this very spot they spread out around Leiden and all over the coast of Holland. Thus a culture came into being that is now a very important export trade and moreover a first class tourist attraction for the vividly colored and good smelling fields of crocusses, tulips, hyacinths and daffodils.

In the 17th century the first bulbs of a new species were sold and resold for extraordinary high prices and an unknown epidemic of gambling resulted. Many people were ruined or suffered severe losses, among the last **Rembrandt**.

At the end of 1500 **Snellius**, one of the first Leiden professors, brought fame to the young university by discovering and developing the science of triangulation. At that time already Leiden turned away from the mediaeval contemplative and philosophical way of teaching medicine and natural sciences. The solemn professor in his gown reading his paper "ex cathedra" was replaced by teaching in the laboratory and at the bedside.

Indeed already in 1636 a clinical school was founded in which the students examined patients, and where in 1650 **Silvius** founded the iatromedical school, introducing treatment with chemical substances. He was the first to describe the origin of a Salt from an acid and a base. At that time also in physics and chemistry, experiments were carried out during practical lectures in special laboratories, functioning continuously up to this time. Here worked **Petrus van Mussenbroek**, a member of a family of instrumentmakers, discoverer of the Leiden-jar, first experimental phenomenon of electricity. **Van Leeuwenhoek** living in near by Delft, discoverer of the microscope, already working with transmitted light — the first to describe micro-organisms and spermatozoae — and also **De Graaff** discoverer of ovulation and **Swammerdam**, the great biologist, were stimulated by — or studied in — the sphere of exact Leiden-sciences. Later, **Christiaan Huygens**, a student of Leiden University, living in near by the Hague, urged by our sailors to provide them with a means to determine the latitude when travelling from east to west, invented the pendulum clock. Moreover this genius was the inventor of an internal combustion engine, discoverer of the ring and greatest moon of Saturn and inter alia he formulated the wave theory of light and the laws of centrifugal force.

However, it is a pity that these great men never were officially rewarded by a professorate. **Leeuwenhoek** — admired all over the world, member of the English Royal Society and singled out by Czaar Peter of Russia to visit him, when travelling through Delft — earned his living as a janitor of the magistracy of Delft. **Swammerdam**, fascinated by the life of the very small animals in a

time that elephants, giraffes and whales were greatly admired, was supported by the learned French nobleman **Thévenot**. On one of his treatises we read this pious dedication: "Excellency I herewith present to you the almighty finger of God in the anatomy of a louse".

At this time, when Leiden was already advanced and specialized in exact sciences, **Boerhaave** was enrolled as a student at Leiden University. He was born in the neighbourhood of Leiden as a son of a minister and was thus extremely poor. He had to do translations in Latin to earn his living. He was originally enrolled for botany and chemistry and not for medicine, but in the beginning of the 18th century he started a medical praxis in Leiden.

In 1709 he was appointed a professor of medicine, botany and chemistry. In spite of his busy days, his clinical duties, his triple professorate, as director of the botanical garden, he found time to raise plants himself with meticulous care. With him Leiden became the centre of a celebrated clinical school, based on the exact, though restricted, knowledge of anatomy, physiology, physics and chemistry. At that time anatomy flourished in Leiden through **Albinus** and **Rau** and fortunately, parts of their beautiful collections are still in existence and preserved in the anatomical museum, marked in the Baedeker with two stars. **Stephen Blankaart**, a Leiden anatomist in the second part of the 17th century, was one of the first to describe the localization of tones in the cochlea. This idea was taken over and expanded by Boerhaave.

**Boerhaave** laid the foundation for the international fame of the University as **Coccejus**, **Junius**, **Lippsius** and **Scaliger** — the teacher of the founder of international law **Grotius** — did for Theology, Oriental studies and Law. A steady stream of foreign students was attracted, and in Boerhaave's time more foreign students matriculated than Dutch. The biographer of **Henry Fielding** who enrolled in 1728 says "being destined to the bar, it was next to natural in those days that he should proceed to Leiden" and likewise it was next to natural for a German, English, French, Scandinavian or Hungarian student destined to medicine that he should proceed to Boerhaave "Totius Europae Praeceptor".

Among these students there are very famous ones. On an enrolment list in the handwriting of Boerhaave himself we see, one next to the other, the names of **Linné** and **Lieberkühn**. Linnaeus worked for three years in Leiden, and his most important writing belongs to this period. As Boerhaave he graduates at the small University of Harderwijk, Leiden being too expensive for them because of the obligatory festivities involved. Famous medical schools f.i. Vienna, Berlin, Uppsala, Edinburgh and thence American schools were founded on the Leiden pattern by pupils of Boerhaave.

His fame was so great that letters with the address "Boerhaave Europe" were promptly delivered. He died in 1738 on his Castle of Poelgeest, leaving a great fortune of heavy florins of that time. Up to now no other Leiden-professor of medicine was as successful as that.

In the Napoleonic time **Brugmans**, as Boerhaave professor in medicine, chemistry and natural sciences, was the first to mind the fate of the wounded soldiers on the many battlefields by organizing the military medical service. A Military medical school was started in Leiden. The training in this school

was deemed by King Louis Napoleon to be superior to the French. At times more than 4000 wounded soldiers were treated in Leiden.

After this time, Leiden suffered as much from the economic depression as most of Europe. Moreover, interest here was focused largely on philosophical and theological problems. Notwithstanding this the first Ethnographical museum of the world and also one of the most important Egyptian museums was founded in Leiden.

Not before the end of the 19th century and in the beginning of our century important discoveries were again made in Leiden. **Lorentz** paved the way which led to the relativity theory. **Einstein** worked with him and was for some time professor in Leiden. **Van der Waals** later professor in Amsterdam started in Leiden and the "**Zeeman effect**", the influence of a strong magnetic field on a source of light, was discovered here too. **Eindhoven**, professor of physiology discovered the string-galvanometer thus enabling cardiology to develop into the science it is now. **Kamerlingh Onnes**, professor in physics was the first to reach the very low temperatures by liquidifying Helium gas, and for 20 years **Madame Curie** among others depended for her experiments concerning the behaviour of radiation in low temperatures on the Leiden laboratory of Kamerlingh Onnes. They all worked in the same period in a small complex of laboratories, four of them being Nobel-prize winners.

The great tradition of the early Leiden painters was continued during the eighty-years-war by no less a painter than **Rembrandt**. He was born in 1606 in a house which you can still see in Leiden. His father, a miller, registered him for the study of Latin, and at the age of 14 years he was enrolled at the University. His name figures among other students aged 20-30 years, most of them foreigners. This curious fact is explained by some that, having a son studying at the University, exempted the family from excise on beer and gave them other privileges. Be that as it may the young Rembrandt soon left the University to become a painter under the direction of **Van Swanenburgh**, and later, under **Pieter Lastman**.

Soon he surpassed his masters in skill and opened his own workshop in Leiden. His picture "**The clemency of Titus**" dates from his 19th year. In this remarkable painting is the first self-portrait showing a high spirited youth with the penetrating look of the painter. Later he left Leiden for Amsterdam, then already a world centre of commerce. Here his fame spread rapidly and he lived in the splendid way of the great patricians of that time. But his love of magnificent objects ruined him and he died a poor man.

Another Leiden-painter of world fame was **Jan van Goyen**, interpreter of the beauty of the Dutch rivers and river-towns such as Dordrecht and Leiden. His daughter married the Leiden painter **Jan Steen**, interpreter of the rough peasant life of that time. It is said that Jan Steen, as an apprentice at the workshop of **Van Goyen** was accepted by him as son-in-law after delivering a master piece, by painting a fly on a certain part of Bathseba coming out of her bath and van Goyen was deceived and tried to catch the fly.

In the later years of our Golden Age when Dutch freedom was already solidly established, the Leiden School of fine-painters a.o. **Van Mieris**, **Gabriel Metsu** and **Gerard Dou** was greatly admired all over Europe and **Van der Velde**, father and son, born in Leiden, were the most famous seapainters of

that age. You will pass the houses where they lived and worked while visiting Leiden to-morrow.

In the 19th century, when science and medicine flourished, we had no painters of world fame, apart from **Lafargue**, and **Schelfhout**. At the turn of the century **Breitner** and **Théophile de Bock**, both friends of **Vincent van Gogh**, worked in Leiden and it is said that Vincent, living in the Hague, walked to Leiden to appease his melancholic moods. We cannot boast on a modern painter from the fame of Picasso but still we are proud that the father of abstract painting — **Piet Mondriaan** — lived and worked in our town during the first world war.

Directly after the Leiden siege **Cornelis Schuyt** created music that still is not forgotten, and which together with the music of **Valerius**, is still popular for carillon playing.

In the beginning of our century, the lives of two dancers of world fame were linked to Leiden. The only daughter of **Isidora Duncan** was born here in Noordwijk not more than 500 meters from this hotel. **Matta Hari**, partly Indonesian, married to an officer of the Dutch-Indonesian army, studied her veiled dances in this very town of Leiden, dances which enchanted the hearts and brains of European gentlemen and also of the German officers in occupied Belgium. For this reason she was executed as a spy in Brussels in 1916.

Holland, the land of freedom of thought, was for centuries and is still the haven of refuge for those who were not tolerated in their own country. **Spinoza** lived and worked in the near by village of Rijnsburg, earning his living by polishing lenses and spectacle glasses. Boerhaave was no sympathizer of Spinoza's pantheism, and neither were the curators of the University and the city authorities. Copies of the *Ethica* were publicly burnt. Notwithstanding this local opposition Spinoza was tolerated. It is said that an accusation concerning remarks of Boerhaave on Spinoza's doctrine, overheard in the tow-boat and misinterpreted, made it impossible for this son of a minister to continue as a theological student and directed him towards the path of exact sciences.

**Descartes** also lived in Leiden, and the first edition of his "Discours de la méthode" appeared in Leiden at the Templum Salomonis still existing at the corner of the Pieterskerk which you will see tomorrow. **Descartes**, while living in Amsterdam wrote to a friend, "that it was only possible to work and to concentrate in his beloved town of Leiden".

When northern France and part of Belgium were retaken by the Spaniards and subjected to the Spanish Inquisition, an important part of the population fled to Holland, and many families of cloth-weavers settled in Leiden. Up to recent times in Leiden a wallon Church, a wallon library and a wallon hospital existed and even now a French minister preaches and teaches in French. The many French names of Leiden citizens prove that they are descendants of these immigrants.

A very important but only a temporary immigration was that of the Pilgrim Fathers. They fled from Badworth in Nottinghamshire, not being tolerated by James I because of their opposition to the institutions of the church of England. They settled in Leiden under the leadership of their minister, **John Robinson** and their elder **Brewster**. They were admitted on the one argument that they

were "such decent people". James I demanded the extradition of their leaders, but Holland refused. Most of them led the frugal life of the simple weaver, but some studied on the University and took part in the religious controversies of Gomaris and Arminius about the doctrine of praedestination. They stayed with us eleven years. Then they began to fear, as their children became interested in the Dutch girls and boys, that the Leiden way of life might wearen their strict habits. Moreover, after a truce, the Spanish war started again. But according to one of them (Bradford) "they were driven by a great hope and inward zeal they had of laying some good foundation or at least to make some way there unto for propagating and advancing the gospel of the kingdom of Christ in those remote parts of the world, yea, though they should be but even as stepping stones unto others for the performing of so great a work". So in 1620 they sailed away under Brewster from Schiedam (the well-known town of the Dutch Gin) first to England on the "Speedwell", to unite at Southampton with their brothers and thence on the "Mayflower" to America. Virginia was their destination, but because of bad weather they took refuge in the bay of Cape Cod. Thus "Plymouth Rock" was climbed by former Leiden inhabitants.

Part of the Pilgrim Fathers stayed in Leiden with John Robinson, who is buried in the Pieterskerk. His house was opposite this church where now is "het Persijnshofje", still for many Americans a place of pilgrimage.

I am aware that my colleagues in other faculties and historians may be dissatisfied because the names and deeds of many other men who in their eyes are equally important and also enjoyed world fame, were not mentioned. However, I must restrict myself for fear that this introduction to the town of Leiden might err on the side of excessive praise. If you feel that way, please remember that small towns and small countries always suffer from a slight inferiority complex and that they live with the challenge of competition with their big brothers in which struggle the recognition of a glorious past is a great help.

Ladies and Gentlemen, let us Dutchmen be humble and thankful:

This rise of the Dutch Republic and of the town of Leiden out of slavery, death and hunger to liberty and prosperity was due to one man, undoubtedly the greatest of his time — the Father of our Fatherland — William the Silent. After him the Princes and Kings of Orange and now our glorious Queen governed — in close union with their people — in his spirit, the spirit of "Preasidium Libertatis" Prevalance of Liberty. In all our efforts, also the scientific ones, we still remember his motto: "Point n'est besoin d'espérer pour entreprendre ni de réussir pour persévérer". When he died by the hand of a bravo even the very young children in the streets wept.