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CHICKENPOX: AN ERROR IN DIAGNOSIS BY HERMANN BOERHAAVE?

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Hermann Boerhaave (1668–1738), who was to make Leiden the foremost medical school in the world, when a young physician formed a friendship with a Scottish student, John Clerk of Penicuik (1676–1755). Clerk belonged to an established aristocratic family which continues to this day to live at Penicuik. He went to Leiden in 1694 to study law. The friendship between Boerhaave and Clerk was based on a common interest in music and they collaborated in composing cantata.[1] Boerhaave also treated Clerk medically as the latter records in his *Memoirs*.[2]

> He was my physitian likeways on all my little distempers, but perhaps I trusted too much to his skill when I hapned to take the small-pox at Leyden in May 1697; he pretended that he had discovered a chymecal Medicine which wou'd carry off the small-pox before they came to any height. I suffered him to try his medicine upon me after the small pox were broken out on my body, the effect was that in a day or two they were all purged off. I greu perferctly well in about a week after. The Doctor from this success was extremely elated, and promised himself a very great fortune on his repairing to London and seting up upon the success of this single Specifick for the cure of the small-pox, but, to my very great misfortune, this Desease returned upon me about 5 months after with great violence, as I shall afterwards notice....
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> I was not in this city [Rome] above 3 days when I again fell into the distemper of the small-pox, which Doctor Bouerhaven thought he had cured me of about 4 months before in Leyden. It came upon me with the same symptoms, but with greater violence than before; however, it pleased God to provide me there with a friend, one Father Cosimo Clerk, who provided all necessaries for me, and never left me either day of night till I was perfectly recovered. This disease, however, took up a long time, for after the violence of the distempter was over I broke out in Boils, and had successively three Feavers, each of them very severe....
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> As I had acquainted him [Boerhaave, on Clerk's return to Leiden] with my case when the small-pox recurred upon me at Rome, he frankly ouned that he had tri'd his experiment on others, but that it wou'd not do...

With hindsight we can be almost certain that Boerhaave made a mistake in diagnosis. A second attack of smallpox is unknown and we may presume that Clerk's first illness in Leiden, comparatively minor, was chickenpox and that his second severe illness in Rome was smallpox. The distinction between smallpox and chickenpox is usually easy but mild cases of smallpox can be mistaken for chickenpox and severe cases of chickenpox for smallpox. It is possible that Boerhaave may have made such a mistake but it is more likely that he was unfamiliar with chickenpox.

Neither smallpox nor chickenpox was known to Greek and Roman physicians. The history of smallpox has been well recorded.[3] The disease was described by Arabian physicians but did not enter Europe until the Middle Ages. It was not until the reign of Henry VIII that the first case was reported in England. But the disease spread slowly and it was not until the second half of the seventeenth century that it replaced plague as the major epidemic disease. There

were then several large outbreaks in London. Five members of the royal family died of it. The clinical features of the disease were fully described by Sydenham[4] whose works Boerhaave had read. There were also outbreaks at the time in Leiden. We may presume that Boerhaave was thoroughly familiar with smallpox, but was he of chickenpox?

The history of chickenpox is much more uncertain. An account is given in J. D. Rolleston's Fitzpatrick lectures given in 1935 to the Royal College of Physicians of London.[5] Rolleston, like his brother Sir Humphrey the Regius Professor at Cambridge, was a learned scholar. He was medical superintendent at the Western Fever Hospital, London, where I went in 1933 with students of St Mary's Hospital 'to do our fevers'. He drummed into us the differential diagnosis of smallpox and chickenpox, and this was of practical use to me when in the Indian Medical Service throughout World War II.

The first account of chickenpox in Europe was in Sicily in 1553 by Ingrassias,[6] a Neapolitan physician, who gave it the name crystalini. Thereafter it appears to have been described under a variety of names. The formal modern name, varicella, is derived from the French, *varicelle*. A Dutch physician, Diemerbrock,[7] in a treatise on smallpox and measles published in 1689 describes different forms of smallpox under the names Steen Pocken, Wint-Pocken and Water-Pocken and these may have been chickenpox. Chicken Pocks first appears in the English language as an idiom for '*variolae maxime benignae*' in 1699 in a book by Richard Morton[8] written in Latin and published in Amsterdam. That chickenpox was not well or generally recognised until much later is indicated by the fact that in 1767 the distinguished physician Heberden thought it necessary to read a paper to the Royal College of Physicians[10] in London giving in detail the differential diagnosis of smallpox and chickenpox, apparently for the first time. Further there is no mention of chickenpox in the first edition, published in 1769, of Buchan's *Domestic Medicine*.[10] This was written specifically for housewives who at that time had the responsibility of the management of diseases, both major and minor. The book was enormously successful. Later editions contain a full account of chickenpox which enabled a housewife to recognize the disease and distinguished it from smallpox. It thus seems probable that chickenpox was an uncommon disease and not generally recognised until the second half of the eighteenth century.

We can conclude that, when in 1697 Boerhaave made his misdiagnosis, this was due to unfamiliarity with what was then an uncommon disease, and not due to an error of judgement.

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FIFTH YEAR STUDENT ELECTIVE: REPORT TO THE MYRE SIM BEQUEST COMMITTEE

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India has a great deal to offer an elective student. The subcontinent provides a fascinating mixture of culture, politics, history and geography, which invites the visitor to explore. As for medicine, there is perhaps as much pathology to be seen in railway stations and on the local bus as there is in the hospitals. I chose to spend my elective in Tamil Nadu, the most southern state of India, where the people are of Dravidian origin (as opposed to the Indo-Aryans of the north) and Hinduism is the predominant religion. I was based at an eye hospital in the bustling city of Madurai, one of India's oldest cities which for centuries has been a centre of learning and pilgrimage. The majority of the one million population are found on the south bank of the great Vaigai River which runs through the city. Here in the old town the famous Shree Meenakashi Temple, a formidable example of Dravidian architecture, draws thousands of visitors daily, and streets are alive with hawkers, beggars, rickshaws and motor vehicles.

Aravind Eye Hospital

This is tucked away on the north bank of the river where life is less crowded if just as hectic. Aravind is actually a group of four hospitals. Two of these are in Madurai itself and the other two are satellite hospitals in the nearby towns of Tirunelveli and Theni. The two hospitals in Madurai lie side by side; one is for paying patients and the other provides free treatment for those who cannot pay. These hospitals have between them 1,400 beds and serve a catchment population of 20 million, making Aravind the largest hospital for eye diseases in the world.

The pace of work inside the hospitals in Madurai echoes that on the streets outside with formidable results. Since its foundation in 1976, over four million patients have been examined and more than 500,000 operations have been performed.

The hospital began as a 20-bedded clinic. It was founded by Dr Venkataswamy, now in his eighties, a man of remarkable vision. As an ophthalmic surgeon, he was well aware of the alarming rate of blindness in India. Nearly four-fifths of India's 800 million people live in rural areas, where treatment for eye disease is not always readily available, poverty is common and the average labourer cannot afford to forego a day's wage to travel to the nearest clinic. Blindness brings a heavy burden to the families of those affected; a person who cannot see to work is no longer a source of income and becomes an extra mouth to feed.

The tragedy is that so often blindness among these people could have been reversed if treated in time. As cataract remains the chief cause in adults, many cases are correctable by surgery.

Dr Venkataswamy recruited the help of his family in an effect to combat this 'needless blindness' in South India and to run the clinic effectively. His brother gave up a prestigious government job to become manager of the hospital and