Healing in the Himalayas: Robert Saunders, Surgeon, and the Embassy to Bhutan and Tibet of 1783

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Abstract

In 1783, Captain Samuel Turner, surveyor Samuel Davis, and surgeon Robert Saunders journeyed from India on an embassy through Bhutan and into Tibet. Saunders, of the Bengal Medical Service, reported his medical observations in the *Proceedings of the Royal Society*, the leading science journal of its time. In his observations, Saunders provides glimpses into both Bhutanese and British medical practices of the late eighteenth century. Saunders' description and observations of goiter became widely quoted, helping to forge a path to the elimination of the condition, and his explanation for the causes of snow blindness were confirmed in laboratory experiments more than 100 years later. Saunders not only sought to observe and to teach, but also to learn from the local healers he encountered. His writings show a respect for the Bhutanese and Tibetan peoples and their medical knowledge that is rare in colonial writings.

Introduction

In January 1783, Captain Samuel Turner of the Honourable East India Company received instructions regarding the political mission he was to undertake. With the birth of the new Panchen Lama (referred to in the West at that time as the Teshoo Lama[1]), Turner was to travel from Bengal through Bhutan into Tibet. The intention was to cement British

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[1] The name would also be applied to a Buddhist monk in Rudyard Kipling's novel of 1901, *Kim.*

relations with Tibet, which had been established by an earlier mission, that of George Bogle, in 1774.[2] Some years later, in 1800, Turner would write a book based on his travels,[3] one that was a great success both critically and commercially.[4]

Turner, though, was not the sole author. Included in the book were illustrations, "taken on the spot," by the surveyor and artist Samuel Davis. "Mr. Robert Saunders, surgeon" wrote part IV (pp. 387-416; 387-400 concern Bhutan) - "Some account of the vegetable and mineral productions of Boutan and Tibet"—though the table of contents describes it more accurately as "Observations botanical, mineral, and medical." Saunders' contribution had been published eleven years earlier in the *Proceedings of the Royal Society* - arguably the world's leading scientific journal of the day.[5] In Thomas Thompson's *History of the Royal Society* (1812, p. 234), Saunders' article was described as "a very entertaining account."

Saunders' survey, while it summarizes the plant life and minerals he observed, certainly had implications for commerce. Had he found abundant timber, coal, and other easily exploitable natural resources, one could imagine that the East

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[2] See Clements R. Markham *Narratives of the mission of George Bogle to Tibet* (Trubner and Co: London, 1876). The assistant surgeon on this journey was Alexander Hamilton, who was twice sent on missions to Bhutan. An Alexander Hamilton became professor of military surgery at the University of Edinburgh in 1780. (See John Comrie: *History of Scottish Medicine* (Bailliere, Tindall, and Cox: London, 1932), p. 629.

[3] Samuel Turner, *An account of an embassy to the court of the Teshoo lama, in Tibet; containing a narrative of a journey through Bootan, and part of Tibet* (Bulmer: London, 1800).

[4] Trevor Lipscombe, "The First British Book about Bhutan: A Publishing History of Turner's *Account of an Embassy*", *Journal of Bhutan Studies, 35*(1), 2016, pp. 1–19.

[5] Robert Saunders, "Some Account of the Vegetable and Mineral Productions of Boutan and Thibet. By Mr. Robert Saunders, Surgeon at Boglepoor in Bengal," communicated by Sir Joseph Banks, Bart., PRS. *Philosophical Transactions of the Royal Society*, Vol. 79, 1789, pp. 79–111.

India Company would have been keen to establish more extensive trade in the region. Naturally, spices and fruits - already a source of extensive and lucrative commercial trade between India and Britain - would likewise have caught the attention of his East India Company sponsors. Scientifically, his reports of new plant species appealed to botanists in the era immediately succeeding Linnaeus's catalog of plants (*Species plantarum*), which had been published in 1754.

We focus here on Saunders' medical observations, though these are not necessarily distinct from his botanical observations. Much of eighteenth-century European medicine was guided by the *Materia Medica*, encyclopedias presenting the botanical information available on a plant and the medicinal purposes to which it could be used. Indeed, not too long after the publication of Saunders's article, Whitelaw Ainslie - likewise a former East India Company surgeon - compiled the *Materia Medica of Hindoostan,* featuring native plants.[6] Such *materia medica*, logically the successors of the medieval herbals, were the forerunners of the formulary used in pharmacy today - an extensive list of agreed-upon therapeutic medicines that may be prescribed for various diseases. The *materia medica* remains popular in the twenty-first century among advocates of the (scientifically discredited) naturopathy movement.

Saunders' remarks remain of interest for two main reasons. First, during the latter half of the eighteenth and the first half of the nineteenth century, western medicine underwent substantial changes. In the 1750's, for example, many purported cures did more harm than good: bloodletting, cupping, and tapping, to name but three. Medicines were still derived extensively from plants, hence the *materia medica*. In that respect, European medicine greatly resembled folk

[6] Whitelaw Ainslie, *Materia Medica of Hindoostan* (Government Press, Madras: 1813). There would also be Tibetan equivalent. See Olaf Czaja, "The Substitution of Materia Medica in Tibetan Medicine: An Inquiry into traditional Tibetan practices." EASTM 46, pp. 119-212, 2017.

healing. The most "modern" treatment available was inoculation (technically, variolation) against smallpox, a method that was introduced into Britain from Turkey. Jenner's use of cowpox to vaccinate against smallpox was not to occur until 1788 - after Saunders' journey to Bhutan - and a basic medical instrument, the stethoscope, would not be invented by Laennec until 1819. Hence, one can read Saunders' account as a way to see how medicine was practiced locally in the late eighteenth century.

One can also see a movement among physicians of this period for a gentler approach to healing. Contemporary British author Jane Austen, in her unfinished novel *Sanditon,* created the character Dr. Reid, who prescribes sea air as a cure. Austen pokes fun at those who, like *Sanditon*'s Mr. Parker, believed sea air and sea bathing were "anti-spasmodic, anti-pulmonary, anti-septic, anti-billious and anti-rheumatic." In reality, inspired by the same reasoning, the town of Margate on the North Kent Coast opened its Royal Sea Bathing Hospital in 1796: water cures were to become - and still remain - popular. Likewise, in Jane Austen's *Sense and Sensibility* (1811), Marianne Dashwood laughs at Colonel Brandon for wearing a flannel waistcoat because "a flannel waistcoat is invariably connected with aches, cramps, rheumatisms, and every species of ailment that can afflict the old and the feeble." This contrasts with signer of the American Declaration of Independence, Benjamin Rush, M.D., who proposed in 1777 that flannel shirts prevent illness. In writing a treatise for the Continental Army, Rush said that British Colonel "Gage obliged the soldiers of his regiment to wear flannel shirts from an accidental want of linen; and it was remarkable during a sickly campaign on the lakes that not a single soldier belonging to that regiment was ever seen in any of the military hospitals."[7]

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[7] Benjamin Rush, MD, *Directions for preserving the health of soldiers: Addressed to the officers of the United States* originally published in 1777. Later in book form, Dobson, Fry, and Kammerer, Philadelphia, 1808, p. 5.

During this period, British high society would flock to the town of Bath to "take the waters" in the hope of obtaining a cure - even though the waters tasted disgusting due to impurities such as sulfur. Jane Austen's novels *Northanger Abbey* and *Persuasion* are set, at least in part, in this town, which drew visitors for the waters, but also for the extensive social life. "Oh! Who can ever be tired of Bath?" asks Catherine Moreland, the heroine of *Northanger Abbey* (1817).

In Germany, meanwhile, physician Samuel Hahnemann was researching what would become known as homeopathic medicine. He did so because of his growing belief that standard cures of the time, particularly blood-letting, caused harm to the patient. "My sense of duty would not easily allow me to treat the unknown pathological state of my suffering brethren with these unknown medicines. The thought of becoming in this way a murderer or malefactor towards my fellow human beings was most terrible to me."[8]

A second reason to study Saunders more closely has simply to do with his tone. He is literally a student - one who studies. Unlike some of his colonialist colleagues, Saunders clearly does not regard himself as necessarily better, or more advanced, than the Bhutanese or Tibetan healers he encounters. He seeks to learn what they can teach him and, in return, to teach what they would like to know. Saunders' writings evidence a cultural exchange of medical information between healers, seemingly of equal abilities. As Bhutanese scholar Michael Aris shrewdly observed, Saunders wrote an "enthusiastic account of traditional Bhutanese medicine."[9] Saunders' own words indicate a sympathetic reading of local medical practices: "I have dwelt long on this subject, because I think the knowledge and observation of these people on the diseases of their country, with their medical practice, keep pace with a

[8] Christian Samuel Hahnemann, Letter to Hufeland, quoted in Richard Haehl *Samuel Hahnemann, His Life and Work* (Homeopathic Publishing Company: London, 1900) p. 64

[9] Michael Aris, Ed., *Views of Medieval Bhutan: The Diary and Drawings of Samuel Davis,* 1783. (Serdina: London, 1982).

refinement and state of civilization, which struck me with wonder, and no doubt will give rise to much curious speculation, when known to be the manners of a people holding so little intercourse with what we term civilized nations."[10]

We begin with a biographical sketch of what little is known about Robert Saunders and follow with a close reading of his medical observations.

Robert Saunders, Surgeon at Boglepoor

According to the *Roll of the Indian Medical Service, 1615–1930, Volume* 1 (p.29), Robert Saunders was first appointed assistant surgeon in Bengal on March 12, 1782.[11] At that time, though there was no Indian Medical Service, he joined the Bengal Medical Service, founded in 1763. The requirement for being an assistant surgeon was to obtain a certificate from the Company of Surgeons of London, which Saunders had obtained in 1780. The Company had recently split, in 1745, from the Company of Barber-Surgeons and would eventually become what is known today as the Royal College of Surgeons.

In the eighteenth century, physicians (those with an M.D. degree) usually were from, and for, the ranks of the wealthy. They would refer their patients to surgeons, who were of lower social standing, for treatments such as the application of leeches and other forms of bloodletting, bone-setting, and so forth.[12] D.G. Crawford, former Lieutenant Colonel in the Indian Medical Services, wrote in 1911 in the *India Medical Gazette*

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[10] Saunders, *Phil. Trans. Roy. Soc.* 1789, p. 554.

[11] Dodwell, E., Miles, J. Samuel. *Alphabetical list of the medical officers of the Indian Army: with the dates of their respective appointment, promotion, retirement, resignation, or death, whether in India or in Europe; from the year 1764, to the year 1838.* (Longman, Orme, Brown: London, 1839) p. 52.

[12] The training of physicians developed sharply during the nineteenth century. Thomas Neville Bonner *Becoming a Physician: Medical Education in Britain, France, Germany, and the United States, 1750-1945.* (Baltimore, Johns Hopkins, 2001).

(pp. 1–7): "In those days, and indeed up to a much later date, the physician, both socially and professionally, stood distinctly higher in position than the surgeon".[13]

Obtaining the certificate from the Company of Surgeons appears not to have been difficult. In 1818, of the 322 men who took the exam to become army assistant surgeons, 276 passed and only 46 failed.[14]

Scottish novelist Tobias Smollett - himself a former surgeon in the Royal Navy - makes fun of the process in his novel *Roderick Random* (1748). In his surgeon's exam, Roderick is asked what he would do if he encountered a patient with his head cut off. He says he knows of no cure; the examiners then busy themselves with arguing and there were no further medical questions. Intriguingly, when Random informs the examiner he comes from Scotland, the examiner replies, "I know that very well - we have scarce any other countrymen to examine here - you Scotchmen have overspread us of late as the locusts did Egypt" (ch.17).[15]

The *Medical Register for the year 1783* lists Robert Saunders as "India surgeon" on p. 23, but on p. 144, for Banff (in Scotland), it reports "R. Saunders, late of this place, has gone to India". (Saunders is not listed in the *Register* for 1780, consistent with the information printed in the *Roll of the Indian Medical Service*.)

Crawford's *History of the Indian Medical Service Volume 2* confirms that Saunders accompanied Turner, as does

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[13] As a lasting consequence of their different social statuses in the eighteenth century, physicians in Britain today are still called "doctor" by their colleagues, whereas surgeons are called "Mr."

[14] Charles A. Cameron, *History of the Royal College of Surgeons in Ireland* (London: Fannin and Co, 1886), p.302.

[15] The campaign of Bonnie Prince Charlie to overthrow "German Geordie" (King George II) ended in 1746 at the Battle of Culloden. Many in Scotland left the country in the ensuing years as a consequence of the Highland Clearances.

Surgeons Twoe and a Barber.[16] After the embassy, though, there is little information about Saunders. As per the *Roll*, he served in 1782 during the First Maratha War (1775–1782) under General Goddard, and the next year joined Turner's embassy. He resigned, so the *Roll* reports, in 1790, after being listed as wounded.[17] This does not square with the *Glasgow Almanack* for 1793 which includes, under assistant surgeons, Robert Saunders, reporting him as being in Europe (p. 157). Three years later, the *Town and Country Almanack* for 1796 had Saunders as surgeon, rather than assistant surgeon, at Boglepore (p. 184).

William "Oriental" Jones, one of the most colorful characters in Asiatic Studies of the nineteenth century, certainly was in touch with Saunders. In Jones' work *On the Spikenards of the Ancients*, the author reports contacting Mr. Saunders "who met with it [*datura ferox*] in Butan where, as he was informed, it is very common… I suspected nevertheless, that the plant which Mr. Saunders described, was not Jatamarisi."[18] It was natural for Jones to correspond with Saunders, since they are mutual acquaintances of Samuel Davis, the surveyor on the embassy.

The story becomes more complicated. Jeremias Reuss, in 1804, identifies Robert Saunders, surgeon at Boglepoor in India, as the "late physician in Banff"[19] and also author of *Observations of the Sore Throat and Fever that Raged in the North of Scotland in the Year 1777*.[20] In addition, in 1898, the *Fasti Academiae Mariscallanae Aberdonensis* recorded a graduate of "176?" (sic), Robert Saunders "Physician in Banff,

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16 Donald McDonald, *Surgeons Twoe and a Barber: Being Some Account of the Life and Work of the Indian Medical Service (1600–1947)*, p. 90.
17 Dodwell and Miles, p. 53, say February 6, 1791.
18 *The Works of Sir William Jones*, vol. 2, p. 14.
19 Jeremias David Reuss *Alphabetical Register of all the authors actually living in Great Britain*, vol. 2, (Nicolai, Berlin, 1804), p. 295.
20 Robert Saunders, *Observations of the Sore Throat and Fever that raged in the North of Scotland in the Year 1777* (J. Murray: London, 1778).

afterwards in India. [M. Corp. S. 1781. Brother of Dr. William Saunders.]"[21]

If this information is correct, Robert is the brother of the famous physician William Saunders, FRS, personal physician to the Prince of Wales, who wrote a book on the uses of mercury, *A New Method of Exhibiting Mercury in the Venereal Disease* in 1767, and a *Catalogue of the Materia Medica*. On this view, Robert Saunders' father is James, a doctor at Banff. Genealogical studies suggest that this Robert Saunders was born August 28, 1754 in Banff, Scotland and was married to Mary Page Keble in Behar, India, on March 3, 1786. Robert died March 4, 1825 in Southend (Lewisham) in Kent, England.

Other evidence suggests the contrary. *Scottish Notes and Queries*, vol XI, 1898, p. 22,[22] said Robert succeeded James in his practice in Banff. There is also the question of why a physician who inherits a Scottish practice takes on the "lower" position of assistant surgeon and heads to India? In addition, Dodwell and Miles list only his appointment and resignation; the letters "MD" do not follow his name, as it does for physicians in the register. It is not clear, then, that Robert Saunders, physician of Banff, is the same person as Robert Saunders, surgeon at Boglepoor. Perhaps the simplest explanation is that two people share the same name and their histories have become conflated. Robert Saunders is not an uncommon British name. As evidence, his contemporaries included Robert Saunders Dundas, and Robert Saunders, Esq., of the Bengal Civil Service. But the transition from medically trained physician from Scotland to surgeon in the Indian service is not without precedent. Robert Kyd (1746–1793), a Scotsman, trained in medicine at Edinburgh before joining the army as an ensign, eventually going to India and establishing the Calcutta Botanical Garden. William Roxburgh (1751–1815) - also a surgeon and botanist from Scotland, trained in medicine at Edinburgh - headed to India as well, and

[21] *Fasti Academiae Mariscallanae Aberdonensis*, Vol. 2, 1898, p. 124.
[22] *Scottish Notes and Queries*, Vol. XI, 1898, p. 22.

became surgeon for the Madras Medical Service. The author of *Flora Indica*, Roxburgh was a contemporary of both Saunders of Banff and Saunders at Boglepoor, and both Roxburgh and Saunders of Banff have MD's from Marischal College, Aberdeen.

Fortunately, we do know that Saunders was a great companion. As Turner writes, "I had every reason to congratulate myself on the choice which had been made as to my associates: and in their kind and friendly attention, I had the satisfaction to find a constant source of comfort, amidst all the toils and difficulties of a long and tedious journey."[23] And, together with Turner, Saunders "enjoyed the distinction of being the first of our nation, that ever signalized themselves by skating in Tibet."[24] He clearly earned the esteem of others. When Saunders develops a fever, Turner reports (p. 104) "The Raja expressed to me a great uneasiness at his sickness; and manifested a sincere concern for his recovery," one of the few occasions of illness reported, except that the high winds caused the expedition to incur "loss of the skin from the greatest part of our faces."

Whether Robert Saunders, surgeon at Boglepoor, was also Robert Saunders, physician of Banff, we do not know. But in either case, he was an asset to the embassy of Samuel Turner and, as we shall see, a keen observer of things botanical and medical, and a person who showed great respect for those he met.

Saunders' observations, botanical and medical

The East India Company sought to generate profits. Hence, while the embassy was to reconnect with Tibet, one suspects that anything the political mission stumbled upon that might make the Company richer would have been welcomed. Naturally, Saunders would please the Company by commenting at length on natural resources. He notes the iron

[23] Turner, *Account of an Embassy*, p. 4
[24] Turner, *Account of an Embassy*, p. 352.

to be found in Bhutan and the gold, lead, and copper to be found in Tibet. From a medical perspective, though, his observations on the *materia medica* would also have appealed greatly, as would his notes on surgery and related medical procedures. Thus, we look first at his botanical observations, noting how well they fit with the European material medica of the time, before turning to other aspects of disease.

Saunders begins his comments on Bhutan by mentioning that he sees pineapples, mangos, oranges, and limes growing in the area, not dissimilar to Bengal. While a simple observation, this might be loaded with meaning. In 1753, James Lind wrote a *Treatise on the Scurvy*, identifying the consumption of citrus fruits as a way to avoid the disease,[25,26] which hints of medicinal and commercial value in such fruits.

Saunders then speaks of three species of the "sensitive plant" (touch-me-not) used to treat fevers, one of which serves as the basis for Terra Japonica, "the history of which we are but lately acquainted with." Terra Japonica, known locally as catechu, is an astringent. William Cullen, whom William Saunders had served as an assistant, in his 1781 *Lectures on the Materia Medica*, describes catechu as useful in the treatment of hemorrhages of the uterus (154–155), and that it is "a tolerable powerful astringent and I have often experienced its effects in diarrhoeas and dysenteries" even though "the name terra japonica is very improper."

The *chenopodium*, or *semen santonicum* - also known as wormseed - is "a medicine formerly in great character, and

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[25] James Lind *A Treatise on the Scurvy* (Sands, Murray, and Cochran: Edinburgh, 1753.

[26] It is not until 1794, however, that Rear Admiral Alan Gardner orders lemons to be carried on board HMS Suffolk. The complete lack of scurvy among sailors on that voyage, arguably the first clinical trial, convinced the Royal Navy that citrus fruits prevent scurvy. By carrying such fruits with them on board ship, especially limes, gave rise to the nickname for British people, "limeys," a contraction of "lime juicers".

used in those diseases from which it is named, is common here." This plant receives its own chapter in John Hill's 1751 *History of the Materia Medica*, where he says that Abrotanum, because it is cheaper, is driving out wormseed, which might explain the basis for it being "formerly used." Chenopodium was also included in the reference volume *A Treatise on Verminous Diseases*, of 1817, where it is said to be particularly efficacious for children.

Rheum palmatum is referred to by Saunders as a drug. It is, though, a form of rhubarb - which is a cathartic and, in large amounts, a poison. According to the *Elements of materia medica and pharmacy*, the dose is "one scruple or half a drachm," and it is useful in treating "dyspepsia, hypochondriasis, jaundice, and some similar affections."[27] He speaks, too, of the bark of the so-called bastard cinnamon (*laurus cassia*), saying that it is put to medical use by the local inhabitants, but unfortunately does not say precisely what this use was. Thomas Castle, in his *Lexicon Pharmaceuticum* of 1828 (p. 95), says its inferior quality compared to true cinnamon meant it was not used in Europe.

One curiosity is Saunders' reference to the kuthullega nut, used locally for fever and "well-known in Bengal." This may well be the bonduc or fever nut, with kuthullega a mishearing or mistyping perhaps of one of the Hindi variants of the name, which Ainslie renders as cat-caleji in his *Materia Medica of Hindoostan*, 1813, p. 81.

Saunders reports that he "saw the *datura ferox* or thorn apple, a plant common in China, and some parts of Thibet where it is used medicinally. They find it a powerful narcotic and give the seeds where they wish that effect to be produced." It is also highly toxic, being of the deadly nightshade family, whose powers were known in the Graeco-Roman world;[28] Galen

[27] John Murray (ed.) *Elements of materia medica and pharmacy* 1804, p. 267.
[28] John Scarborough, "Thornapple in Graeco-Roman Pharmacology," *Classical Philology*, *107*(3), pp. 247–255 (2012).

suggested that milk or grapes could serve as antidotes. Jonathan Pereira, in his *Elements of Materia Medica and Therapeutics*, writes, "In 1802 General Gent introduced this species into the country as a cure for asthma."[29] This usage caught on in the New World, and was attributed to an Indian discovery.

In 1813, the New *England Journal of Medicine* reports:

> It seems that the *Datura* of the East-Indies, *Datura Ferox*, has been used at Madras with considerable benefit to asthmatic patients. A quantity of the dried root was brought to England, and tried there by some individuals, with evidently palliative effects. A gentleman having exhausted his stock of the oriental plant, was advised to have recourse to the common *Stramonium*, as a plant bearing close affinity to the *Datura Ferox*. This was accordingly tried and being found to afford nearly the same relief as the other, it rose rapidly into notice. But the cases of asthma which are thus susceptible of relief, and the precise kind of preparation best suited for use are undetermined.[30]

Saunders, by commenting on plants with medicinal uses, displays his own extensive knowledge of the European *materia medica* of his day. However, there is no hint that local healers lack his knowledge of the use of a particular plant. This suggests that the *materia medica*, and thus medicinal healing,

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[29] Jonathan Pereira, edited by Joseph Carson *Elements of Materia Medica and Therapeutics, Volume 2* (Blanchard and Lea: Philadelphia, 1852) p. 562. The quote regarding General Gent comes from a letter published as part of a study "On *Datura Stramonium*" comparing *D. Ferox* and *D. Stramonium* as cures for spasmodic asthma in the *Edinburgh Medical and Surgical Journal*, Vol. 8, 1812, pp 364–365.

[30] *New England Journal of Medicine*, 'Historical Outline of Medical Science", *2*(1), (1913) pp. 1–3.

of Britain and Bhutan are on a par during this time period.[31] Bhutanese traditional medicine still remains strong to this day.[32]

Saunders does more than comment on medicinally useful plants. He also serves as a teacher and a student of medicine. In meeting with the Rajah, Turner tells us, "Mr. Saunders afforded him a great treat, by shewing his chirurgical instruments and explaining their use." As a consequence, the Rajah gives him "specimens of all his drugs."[33] In return, Saunders gives the Rajah all he can spare from his medicine chest. One sees here an exchange of gifts among equals, not one of a colonial power showing superiority over indigenous peoples. Saunders shows the Rajah the purgative ipecacuanha to induce vomiting, which the Rajah tries on himself, first.

In addition to sharing medicines, Saunders showed the local healers how to fashion their own lancets. This may later have become extremely useful. According to the journal of Samuel Davis, "The Raja presented one [book] to Mr. Saunders, which he said comprehends the whole science of medicine… In surgery, perhaps, they may have some little skill… Mr. Saunders said he was surprised to see a difficult case of a fractured skull treated by one of their practitioners with great propriety." The method used was almost certainly trepanning, which requires sharp medical tools to bore a hole into the head.

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[31] A critical, if not harsh, summary of modern Tibetan and Bhutanese medicine compared to that of the West can be found in Donald R. Gore, "Tibetan Medicine" *Perspectives in Biology and Medicine*, *42*(2) (1999), pp. 270–279.

[32] See Phurpa Wangchuk, Stephen G. Pyne, and Paul A. Keller, "An assessment of the Bhutanese traditional medicine for its ethnopharmacology, ethnobotany and ethnoquality: Textual understanding and the current practices" *Journal of Ethnopharmacology*, *148*(1), pp 305–310, (2013).

[33] The Rajah's gift might have been extensive. A recent estimate suggests that Bhutanese traditional medicine includes some 1,000 plants. See Phurpa Wangchuk and Tashi Tobgay "Contributions of medicinal plants to the Gross National Happiness and Biodiscovery in Bhutan." *Journal of Ethnobiology and Ethnomedicine*, *11*(48), (2015).

Saunders method for fashioning sharper lancets may have greatly benefited future patients undergoing this trepanning procedure.

In conjunction with lancets, Saunders describes to them the method of tapping, a medical practice that, at the time, was thought to restore balance to the body by removing excess fluids from the body - fluids a British surgeon would have interpreted as signs of an excess of one of the four humours. Specifically, Saunders teaches them in the context of the dropsy. Saunders may well have been a good instructor and carer for the sick; Turner observes (p. 203), "Mr. Saunders humanely consoled him [the Lama] with his good counsel and medical advice."

Bhutanese and Tibetan healers, in turn, taught Saunders. Saunders notices that "in bleeding, they (surgeons) have a great opinion of drawing blood from a particular point." In essence, bleeding should be carried out at the closest, largest vein available, and never in cold weather. Given his generally favorable description of the medical practices that he encountered, Saunders might well be suggesting that British practitioners should give serious consideration to the points used for drawing blood, perhaps indicating that the West might learn from the East. He observes that the treatment for skin conditions and for bowel diseases was to take a hot bath, a remedy western medicine did not prescribe for these particular ails, and notes that cupping was practiced in the region, as it was in Britain.

The mission encountered other, more-serious diseases. "The liver disease is occasionally to be met with, and complaints in the bowels are not infrequent." But Saunders also observes smallpox, which is not frequently encountered, given that isolated cases are usually responded to by a quarantine. Should the patient succumb, the house "is afterwards erased" by fire. Thus "the progress is checked by the vigilance and terror" of the people. Saunders goes on to express concern, then, with the newly employed treatment in the West of

inoculation (*vide supra*, with smallpox, not with cowpox); he fears that some of those inoculated will develop smallpox and pandemonium may ensue. In other words, Saunders expresses implicit approval of local practices: the current Himalayan method of handling isolated outbreaks may well be preferable to what the West could offer at that time.

In a sense, Saunders is a medical pathbreaker. (Snow) blindness, he says, is more common in Tibet than Bhutan. As early as Xenophon (fl. 400 BCE), we have known of blindness in snowy regions ("disabled soldiers, struck down with snow-blindness or with toes mortified by frostbite, were left to their fate"[34]). Saunders suggests the reason is "the high winds, sandy soil, and glare from the reflection of the sun, both from the snow and sand, account for this." While Saunders reports this in 1789, finding the cause of snow blindness is generally attributed to Johannes Widmark, in his 1888 article "The Influence of Light on the Anterior Part of the Eye," settling a fierce, contemporary debate over what is due to light and what is due to the other culprit identified by Saunders - abrasion by small particles, such as sand[35]. We might reasonably claim, then, that Saunders was truly the first to report accurately on the causes of snow blindness.

Saunders is also path-breaking in terms of goiter: "Of the diseases in this country, the first that attracts our notice as we approach the foot of the hills, is a glandular swelling of the throat" (p. 407). But Saunders goes further, saying, "This very extraordinary disease has been very little attended to… it is not exaggerating to say that one in six of the Rungpore district and of Boutan has this disease." In addition, he notes the discrepancy between previous opinions - that goiter is caused

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[34] Xenophon, Anabasis, book 4, chapter 5.

[35] In the *London Medical Recorder*, November 20, 1889, p. 462, W.W. Ireland translates the French language section "Comptes rendus des traites", Band xxi, No. 6 of the *Nordiskt Medicinkst Arkiv*. This is a precis of the main article, in Swedish, of E. J. Widmark "Om lyusets infyltande på ögats främre medier" *Nordiskt Medicinkst Arkiv,* Band xxi No. 1, pp. 1–62.

by impurities in snow water - and the realities he sees in Bhutan. Saunders says, "If a general view of the disease, and situations where it is common, had been the subject of inquiry, or awakened the attention of any able practitioner, we should have been long since undeceived in this respect."

Rapidly, Saunders' observation becomes the standard for goiter. His estimate of 1 out of every 6 people is reported in a study of India from 1832.[36] Arguably more important, his work becomes part of the medical record. Benjamin Smith Barton, professor of materia medica at the University of Pennsylvania, refers to it the year after Turner's *An account of an embassy to the court of the Teshoo lama, in Tibet* was published,[37] using it to study goiter in the United States. So, too, does William Gibson - a professor of surgery at the University of Pennsylvania who fought in the Battle of Waterloo - in his "Essay on Bronchocele or Goitre,"[38] who also cites it in his medical textbook.[39] As a consequence of the mission and Saunders' part in it, knowledge of goiter and its causes becomes far better known.

Goitre, though, remained common,[40] sufficiently well enough to enter Bhutanese folk lore,[41] and led to people seeking

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[36] H. Murray, *Historical and descriptive account of British India*, 1832, pp. 218–219.

[37] Benjamin Barton Smith, *A memoire concerning the disease of goitre as it prevails in different parts of North America* Philadelphia 1800. pp. 11–12, 42, 87, 90.

[38] W. Gibson "Essay on Bronchocele or Goitre", *Philadelphia Journal of the Medical and Physical Sciences*, Vol. 1, 1820, pp. 44–73.

[39] William Gibson *Institutes and Practice of surgery* (James Kay, Jr. and Brother: Pittsburgh, 1844). P 59–60.

[40] M. Miles, "Goitre, cretinism, and iodine South Asia: Historical perspectives on a continuing scourge" *Medical History*, *42*(1), (1998).

[41] See, for example, the story "Lazy boy and the king", featuring the goitre ghost, in Dorji Penjore, "Oral Traditions as Alternative Literature: Voices of Dissents in Bhutanese Folktales" *Journal of Bhutan Studies*, Vol. 20, 2009.

healing through bathing in sacred pools[42]. Physicians report that, in the early 1960's, goiter affected approximately 80% of the women in Bhutan. In addition, venereal diseases remain common.[43] Significant inroads have been made recently, though, in the fight against goiter, especially by Gomchen Wangchuk,[44] and against smallpox.[45]

There is also extensive commentary on venereal disease, "which seems to rage with unremitting fury in all climates, and proves the greatest scourge to the human race." Saunders notes his willingness to learn from local medical practice, "I must own that I had expected to have been able to have added one other specific for this disease to our list in the Materia Medica, being informed that the disease was common and their method of treating it successful." The treatment, though, was based on mercury, and as such was already being used in the West.[46] Mercury was, in fact, regarded as a cure all by European and American doctors,[47] including William Saunders: In Great Britain, it was primarily given for venereal disease, while in the early United States, Benjamin Rush advocated for calomel (mercury chloride) purges. "Dr. Rush's Bilious Pills," given to the Lewis and Clark Expedition of 1803, contained 50% calomel, and were given the nickname

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42 See Phurpa Wangchuk "Healing through Spirituality, Waters and Herbs: An Indigenous Panacea of Bhutan" in the *Sixth Colloquium on Tangible and Intangible Culture.*

43 Tashi Tobgay, Ugen Dophu, Cristina E Torres, and Kesara Na-Bangchang, "Health and Gross National Happiness: review of current status in Bhutan", *Journal of Multidisciplinary Healthcare*, *4*, 2011, pp 293–298.

44https://kuenselonline.com/gomchen-wangchuk-the-man-who-helped-bhutan-eliminate-goiter/

45 Sanjoy Bhattachrya "International Health and the Limits of its Global Influence: Bhutan and the Worldwide Smallpox Eradication Programme" Medical History *57*(4), (2013) 461–486.

46 Tibet had its own methods for purifying mercury. Olaf Czaja "On the history of refining mercury in Tibetan medicine" Asian Medicine 8 (213) 75–105.

47 See Leonard J. Goldwater *Mercury: A History of Quicksilver* (York Press: Baltimore, 1972).

"Thunderclappers." In India, post-1750's, calomel was prescribed for dysentery and fevers.[48] Saunders describes at great length the mercury-based compound and its application. Barbara Gerke argues persuasively that what Saunders observed was not, in fact, of Bhutanese or Tibetan origin, but rather a treatment they had learned from Chinese medicine.[49]

Saunders' work was not only well-received by those who study goiter, but also the wider medical community. Synopses of his work appeared in the *Analytical Review* and the *Critical Review*, as well as in the *Edinburgh Magazine*, in 1789. The *Gentleman's Magazine* followed suit in 1790. His description of a lake of tinkal, now commonly known as borax, found its way rapidly into overseas publications. Likewise, his notes on Lac found their way into the *Principia Botanica* of Robert Waring Darwin of 1810 (p. 324) and into the pages of the *Philosophical Magazine*.

The article in the *Proceedings of the Royal Society*, which was reproduced in Turner's own book, contains Saunders' acute observations, which were of interest to avid readers of stories of exploration and adventure; to those keen to exploit the natural resources commercially; but also to those who are interested in the scientific pursuits of botany and of medicine, which made Saunders' article highly influential in its own time and beyond.

Conclusion

We see in Robert Saunders a person of his time. Obtaining a certificate as an assistant surgeon, he seeks a new beginning in the British Empire, rising to the rank of surgeon. He is chosen to accompany Turner on a pivotal journey, and his writings based on that journey show his sharp observational

[48] Mark Harrison, *Medicine in an Age of Commerce and Empire* (Oxford: Oxford University Press, 2010), p. 149.
[49] Barbara Gerke, "Poison of Touch: Tracing Mercurial Treatments of Venereal Diseases in Tibet" *Social History of Medicine 28*(3) 532–554 (2015).

skills, and his abilities as a surgeon, teacher, and as a student. It is Saunders who suggests that the Himalayas might be the highest mountains in the world.[50] As a surgeon of his times, he keeps a look out for those plants that might be beneficial and to add to the *materia medica*, and hence to cure the sick - helped by the medicinal plants received from the Rajah. But above all, he treats those he encounters with respect and collegiality, a refreshing change from typical colonial attitudes to non-Europeans. His observations on goiter certainly helped advance the cure of the disease, even if it has taken far too long for a cure to come to the Kingdom of the peaceful dragon, and Saunders might well be the first to explain the causes of snow blindness. The medical and interpersonal skills he displays are highly sought after today, among practitioners of Western and traditional Bhutanese medicine alike.

[50] R. H. Phillimore (Ed.) *Historical Records of the Survey of India: Volume 1, Eighteenth Century* (Survey of India: Dehra Dun, 1945) p. 77.