

News, Notes and Queries

A DESCRIPTION OF *CLOSTRIDIUM HISTOLYTICUM* GAS-GANGRENE IN THE EPIDEMICS OF HIPPOCRATES

NEUBURGER (1910) points out that in the *Corpus Hippocraticum* the classification of disease by the salient features has led to a lumping together of heterogeneous conditions. It is by no means certain that the condition described in *Epidemics III*, ch. iv, is homogeneous, but the description seems clear enough to justify a diagnosis of *Clostridium histolyticum* gas-gangrene in some of the cases.

The condition occurred mainly in spring and less frequently in summer and autumn; it was initiated by trivial accidents or very small wounds which led to erysipelas (έρυσιπελας), which is here taken to mean a non-specific, hot, yellowish-red swelling of the skin. Some of these were no doubt cases of subcutaneous septic infections, as is suggested by fact that cases that ended in suppuration recovered, even when there was extensive destruction of flesh, sinews and bone.

But in some the flux which formed was not like pus (ἦν δὲ καὶ τὸ ῥεῦμα τὸ συνιστάμενον οὐ πύφιν κελον), but another kind of putrefaction with a copious and varied flux (ἀλλὰ σηπεδὼν τις ἄλλη καὶ ῥεῦμα πολὺ καὶ ποικίλον), and whenever the inflammation and erysipelas disappeared without suppuration there were many deaths. This is more like gas-gangrene due to clostridial infection, though admittedly there is no reference to crepitus in the tissues. The fact that in some cases entire limbs were lost and in others bones were bared of flesh (πολλοῖσι μὲν γὰρ βραχίων καὶ πῆχυς ὅλος περιερρήθη . . . οἷσι δ' ὅλος ὁ μηρὸς ἢ τὰ περὶ κνήμην ἀπεψιλοῦτο καὶ ποδὸς ὅλος) suggests that *Clostridium histolyticum* was the infecting organism. Similar lesions can readily be produced in experimental animals by intramuscular injection of cultures of this organism. If the diagnosis is correct, this is the first known description of this condition.

I wish to thank Professor C. L. Oakley for much help and encouragement in the preparation of this note.

REFERENCES

- HIPPOCRATES (1923), translated by W. H. S. Jones, Loeb Classical Library, London and New York, Vol. I, pp. 241-2.
NEUBURGER, M. (1910), *History of Medicine*, Oxford, I, 154.

M. SUSSMAN

Department of Bacteriology
School of Medicine, Leeds

A NOTE ON THE MEDICAL USE OF SALT IN FIFTEENTH-CENTURY AFRICA

THE use of sodium chloride to prevent and overcome the symptoms of heat exhaustion and heat cramp is firmly established in contemporary medical practice and derives its rationale from modern biochemistry and physiology. The physician who employs sodium chloride in this way bears in mind what he has learned about electrolytes, millilitres and milliequivalents. His mental climate is one of modernity and efficiency, and he is apt to suppose that the sodium chloride treatment is the result of comparatively recent advances in science.

News, Notes and Queries

These comfortable presuppositions are sharply jolted by the following passage, which was written in the fifteenth century:

Beyond the said mart of Edon [Oden], six days journey further inland, there is a place called Tagaza, that is to say in our tongue 'cargador', where a very great quantity of rock-salt is mined. Every year large caravans of camels belonging to the above mentioned Arabs and Azanaghi, leaving in many parties, carry it to Tanbutu [Timbuktu]; thence they go to Melli [on the Niger River], the empire of the Blacks, where, so rapidly is it sold, within eight days of its arrival all is disposed of at a price of two to three hundred *mitigalli* a load, according to the quantity; (a *mitigallo* is worth about a ducat:) then with the gold they return to their homes.

In this empire of Melli it is very hot, and the pasturage is very unsuitable for fourfooted animals: so that of the majority which come with the caravans no more than twenty-five out of a hundred return. There are no quadrupeds in this country, because they all die, and many also of the Arabs and Azanaghi sicken in this place and die, on account of the great heat. It is said that on horseback it is about forty days from Tagaza to Tanbutu, and thirty from Tanbutu to Melli.

I enquired of them what the merchants of Melli did with this salt. . . . Since it is below the meridional and on the equinoctial, where the day is constantly about as long as the night, it is extremely hot at certain seasons of the year: this causes the blood to putrefy, so that were it not for this salt, they would die. The remedy they employ is as follows: they take a small piece of the salt, mix it in a jar with a little water, and drink it every day. They say that this saves them. The remainder of this salt they carry away on a long journey in pieces as large as a man can, with a certain knack, bear on his head.

The foregoing was written by Alvise de Ca' da Mosto, commonly known as Cadamosto (? 1426–83), a Venetian who made two voyages to Africa in Portuguese ships during the years 1454–6 or thereabouts. The full text has been published in English translation by the Hakluyt Society.¹

The passage quoted derives its great interest from the fact that it describes the use of salt not as food or as condiment but for the clearly stated purpose of combating the effects of intense heat. This implies a degree of cultural sophistication which one would not expect to find among African negroes of the fifteenth century.

The hypothesis that heat causes the blood to putrefy would seem to be a fragment of humoralistic thinking which might have been contributed by Cadamosto himself or by his informant and cannot be assumed to represent native African doctrine.

The medical manual written by Fray Agustín Farfan, titled *Tractado Breve de Medicina* and printed in Mexico in 1592, can be taken as an example of late medieval medicine.² This fascinating book contains a chapter on fever from corrupted blood. Among the causes of this type of fever Farfan enumerates excessive anger, excessive exercise and excessive exposure to the sun.

The trade in salt, to which Cadamosto refers, has been known since antiquity. Thus Herodotus³ speaks of a caravan route which connected the salt oases of Libya. He also mentions deposits of salt which occur near the Dnieper.⁴ Strabo⁵ speaks of salt mines in northern India. Mas'ūdi,⁶ the tenth-century Arab geographer, refers to salt from Palmyra. It seems almost certain that a thorough study of the Arab geographical literature would reveal additional sources of information on the subject and would perhaps uncover early reports of the use of salt by Africans.

Caravans laden with salt still cross West Africa as they have done since time immemorial. The most recent information concerning this ancient trade has been presented in an official publication of the French Government.⁷ Additional facts, collected from varied sources, can be found in an article by Meneely.⁸

News, Notes and Queries

ACKNOWLEDGEMENT

The author wishes to thank the Hon. Secretary and the Council of the Hakluyt Society for permission to reproduce the excerpt from Cadamosto.

REFERENCES AND NOTES

1. CRONE, G. R., *The Voyages of Cadamosto*, London, Hakluyt Society, 1937, pp. 21–2.
2. FARFAN, A., *Tractado Breve de Medicina*, Mexico, Pedro Ocharte, 1592. Facsimile edition, Madrid, Ediciones Cultura Hispánica, 1944. See pp. 238 verso and 239 verso.
3. HERODOTUS, IV, 181–5.
4. HERODOTUS, IV, 53.
5. STRABO, XV, 1, 30.
6. MAS'ŪDĪ (ABŪ AL-HASAN 'ALĪ IBN AL-HUSAIN AL-MAḠŪDĪ), *Les Prairies d'Or*. Texte et traduction par C. Barbier de Meynard et Pavet de Courteille, Paris, Imprimerie Impériale, 1861–77, VIII, 398.
7. France. Présidence du Conseil, Direction de la Documentation, Centre de Hautes Etudes d'Administration Musulmane, *L'Economie Pastorale Saharienne*. Notes et Etudes Documentaires, no. 1730, 21 April 1953. See esp. p. 28 (copy in library of American Geographical Society, New York). See also THOMAS, BENJAMIN E., 'Settlement in the Sahara', *Geographical Review*, 1955, XLV, 271–2.
8. MENEELY, G. R., 'Salt.' *Amer. J. Med.*, 1954, XVI, 1–3.

New York

SAUL JARCHO, M.D.

TRAUMATIC PARAPLEGIA TREATED BY OPERATION IN 1841

INJURIES of the spine involving paraplegia and incontinence have, for several millennia, been held to be untreatable. The Edwin Smith papyrus, c. 2800 B.C., stated that 'this was an ailment not to be treated'.¹

Ambroise Paré, in his chapter 'of the Fracture of the Vertebrae or Rackbones of the Back',² described 'numbness and palsie of the armes, legges, fundament and bladder' for which he gave a very poor prognosis, though he added 'you may make an incision, so to take forth the splinters of the broken vertebrae, which driven in, presse the spinal marrow and the nerves thereof'. He did not say that he had attempted this operation himself.

In the eighteenth century, only Henry Cline (1750–1827), of St. Thomas's Hospital, took any active steps to relieve the symptoms of compression. We are told by his pupil, Sir Astley Cooper, that this bold and imaginative surgeon, who provided a link between the teaching of John Hunter and the great surgeons of the early eighteenth century,³ was 'the only person who took a scientific view of this accident. He considered it to be similar to fracture with depression of the cranium, and to require that the pressure be removed'.⁴ Unfortunately, Cline's only case was unsuccessful, and Astley Cooper wrote 'he was blamed for making this trial'.

The patient thus continued to lie beyond the hope of surgery, and Liston, in 1832, mentioned trephining of the spine 'only to condemn it'.⁵

This ineffectual state continued till the 1920's, when there arose a brief interest in laminectomy for this injury. Operative treatment has, however, now been largely superseded, and is only considered under certain circumscribed conditions.^{6, 7} But the