suggest that it is somewhat more active in vivo than either gentamicin or tobramycin. My limited experience suggests that it may be useful in treating refractory infections such as *Ps aeruginosa* pneumonia. It may soon become commercially available in Britain.

NETILMICIN

Netilmicin (N-ethyl sisomicin) is a semisynthetic derivative of sisomicin, which is apparently much less ototoxic than gentamicin or the other aminoglycosides. There is conflicting evidence as yet about nephrotoxicity. It has a similar spectrum to sisomicin (although weight for weight less active against *Ps aeruginosa*) with the important exception that it is resistant to

some of the resistance enzymes. Its spectrum against resistant strains is not as wide as that of amikacin but is wider than gentamicin, sisomicin, or tobramycin. It will be undergoing clinical trials in Britain soon.

(To be concluded next week)

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Medical History

History of medicine in Gibraltar*

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British Medical Journal, 1978, **2**, 552-555

Centuries before the birth of Christ Gibraltar was designated by Phoenician and Greek mariners as Calpe, the northern tier of the Pillars of Hercules. This was the end of the civilised world and beyond it lay the dread unknown. There is no evidence of any Phoenician or Roman settlements on the Rock itself, but archaeological discoveries along the coast on both sides of the straits show that the region was extensively colonised and settled before the Christian era. The Romans, with their strategic military sense, almost certainly established a presence in Gibraltar, and St Michael's Cave is known to have been discovered by Roman legionnaires. The history of medicine in Gibraltar therefore probably began with a military flavour, the first to practise the arts of Apollo and Asclepius being the medical ancillaries of the legions.

With the fall of Rome and the rise of Visigothic kingdoms in Spain the history of Gibraltar (as indeed that of most of Europe) is clouded over and confused, but shortly after AD 700 Tariq, a Moorish chieftain, began the conquest of the Iberian Peninsula and brought the region back into the mainstream of European history and enlightenment. Tariq himself crossed over into Spain through Gibraltar and since then the Rock has borne the name of its conqueror—Gebel Tariq or the Rock of Tariq, now anglicised to Gibraltar.

Little is known of the Moorish settlement of Gibraltar but in the 13th Century the Moorish Castle was built—indeed, the Tower of Homage still dominates the town. Some sort of court was established here and a fairly advanced medical presence may be assumed to have existed. Further down in the town public

baths were built at a time when washing was not a practice honoured in Europe generally.

Spanish period

The history of the city of Gibraltar proper begins, however, with the final Spanish reconquest of the Rock in 1462. Only since this date is there continuous documentation of any historical validity. An urban community soon established itself, and in 1502 Queen Isabella the Catholic formally incorporated Gibraltar into the territories of the Spanish Crown and granted the town its coat of arms—much the same one that it boasts today, with the key and castle as the predominant symbols. With the growth of the city the usual trappings of a civilian community began to appear: churches, markets, and the first rudimentary hospital. The hospital was the creation of probably the most colourful medical personality ever to inhabit these shores—Juan Mateos. In his youth Mateos was active in defending Gibraltar against Algerian pirates and became famous in resisting one of their landings, killing the pirate leader. Possibly capitalising on his fame he became a merchant and amassed a considerable amount of money. Later he became the official "Dispenser of Royal Licences"—a position that must have afforded him many opportunities to make more. Yet in 1567 Mateos seems to have undergone a sudden change of heart, having been particularly affected by the sorry sight of the many sick seamen left stranded in Gibraltar after voyages to the New World as well as by the plight of the poor sick of the town. He turned his large town house into an infirmary, keeping only a small cell for himself. He lived frugally, ate badly, and wore only sackcloth: his considerable fortune he put to charitable work in running the hospital, and when all his money was gone he spent the mornings begging and collecting alms with which to keep the hospital going. Records show that a disproportionate number of the patients treated, particularly sailors, suffered from a virulent form of syphilis brought over from the New World.

*Based on an address given at the BMA Joint Clinical Meeting in Gibraltar on 13 April 1978.

Mateos continued his almost singlehanded work for 24 years and became well known in the surrounding countryside, patients coming to him from far and wide. In 1591 the Bishop of Cadiz came to Gibraltar to visit the saintly man and his medical institution but on meeting him found him so weak "in consequence of much work and fasting" that he arranged for the Order of St John of God to take over the hospital and run it for him. Mateos joined the order himself but his activities gradually

sieges and the recurrent epidemics that were so common a feature of Gibraltar in those early days.

Interservice rivalry seems to have been a feature of military life in those days and there are repeated suggestions in correspondence at the time that the Army should have its own place. Since it was evident that the hospital was being used mainly by the Army, the Navy ceded it to them in 1814 while retaining a ward for sailors. With the rise of British power in the 19th century and the increased garrison and naval presence in Gibraltar, even this eventually became inadequate and in 1903 a brand new military hospital was built. This was modern and well equipped with 206 beds and became the main British Military Hospital in Gibraltar, the old Naval Hospital being handed back to the Navy, which kept it open until 1927. Thereafter the British Military Hospital became responsible for the care of all service personnel—the Army, Navy, and now the RAF as well. The wheel, however, turned full circle in 1965 when the hospital was once more taken over by the Navy and run for the benefit of all Service personnel.

Civilian medicine 1704-1814

There is nothing to show what medical facilities existed for civilians during the initial decades of British occupation. When Gibraltar was captured most of the population fled and the official lists made of the few civilians who stayed behind show that no brothers of St John of God were left to tend to the sick. The old hospital founded by Juan Mateos probably ceased to exist as such, and indeed some years later documents showed that the building had taken on a new role, as the barracks of the Royal Artificer's Company, though even in this new guise a regimental sick bay was to be found within its walls.

From the mid-18th century onwards a new civilian town began to emerge. The demands of a large garrison and naval station attracted immigrants to provide the ancillary needs of the base. These immigrants came chiefly from Genoa but also from other parts of Italy, Portugal, and later Spain and Malta. They formed the nucleus of a new civilian community and as such required medical services. These services were provided by an increasing number of medical men, some civilian, some military, some qualified, and others not qualified. By 1790 a primitive form of medical registration list had been drawn up and an official committee composed of military practitioners was set up to assess abilities and qualifications before admission to the register. By 1814 there were 10 registered physicians—three British and seven Spanish.

Another great Gibraltarian medical personality then appeared on the scene: Juan Cortes. As a young man he came from Spain in 1791, and he seems to have already had some medical experience when he started to practise in Gibraltar. Despite his lack of any formal medical education he soon established himself as a leading physician. He was a careful observer and left several accounts of the diseases encountered in Gibraltar at the time. In particular, he wrote at length about yellow fever, an epidemic scourge that afflicted Gibraltar with monotonous regularity. He described the illness scrupulously and insisted on its infectious nature. In 1804 during an especially severe epidemic a "lazareto" or isolation settlement was opened outside the walls of the fortress and Cortes was placed in charge.

Yellow fever

Several epidemics of an unknown fever had occurred during the last decades of the 18th century in the region around Cadiz, and in 1798 the fever was reported in Gibraltar for the first time. At this time the garrison contained several medical officers who had served in the West Indies and they confidently diagnosed this fever as yellow fever. The first major epidemic to affect Gibraltar came in 1800, as part of a pandemic that affected all the South of Spain; although rigorous measures, including a

FIG 1—The old Naval Hospital was built in the 1730s and completely reconstructed in 1905, shortly before this photograph was taken. The building is now an official residence for dockyard officers.

diminished and he died an old man in 1594. His death was a sad blow, and he was lamented and venerated with religious ceremonies lasting several days. The hospital, however, continued to thrive and gave service to the townspeople and the sick for miles around.

The main hospital in Gibraltar has remained on the same site throughout the centuries, though from time to time its medical function has been temporarily interrupted.

British occupation

The next phase in both the general and the medical history of Gibraltar begins in 1704 when an Anglo-Dutch fleet under the command of Admiral Rook captured the Rock. This event changed not only the political and national status of the city but also its cultural and social pattern. Up to then Gibraltar had been essentially a civilian settlement with its rather less than adequate garrison, but when the British landed most of the original Spanish population fled to the neighbouring town of San Roque, and Gibraltar became a military base—a fortress by nature of its position and circumstances as well as by the absence of any counterbalancing civilian presence. This change affected all spheres of life, the medical no less than others. From then on medicine in Gibraltar developed in two streams, the military at first preponderant and the civilian arising from small beginnings to an increasing and finally dominant position as the community of Gibraltar as we know it today developed.

When the British Forces established themselves in Gibraltar early in the 18th century the regiments had their own medical officers and individual sick bays but there was no central medical facility. The old hospital of St John of God was taken over and initially used as a regimental sick bay but later on this was converted to stores and barracks. In time, however, the need for larger medical quarters became pressing, and a Naval Hospital was built in 1740. This was large and well equipped and catered for the needs of both the Army and the Navy: these needs were great, as there was a large garrison as well as a small supporting civilian population subjected periodically to

military cordon of the area, were taken to try to prevent the spread of the disease, it reached the Rock and killed many hundreds—257 in the garrison alone.

In 1804 the disease appeared with even greater force. Britain and Spain were again at war but in spite of this the Governor and authorities did not spare any effort to try to contain the disease. Nevertheless, by March 1805, 4864 civilians and over 1000 soldiers—over half the population—had died. Harrowing tales are told of those days: up to 100 bodies had to be buried daily, and they received the most summary disposal. On several occasions children were found playing among the dead bodies of parents, whom nobody had had time to bury. If Gibraltar was badly hit so was the South of Spain, and though war was in progress Spanish, French, and British physicians held a number of conferences in the neutral ground to try to control further outbreaks. Eventually the epidemic subsided though it was followed by minor ones in 1810 and 1813-4.

Early in 1814, when this last epidemic was at its height, Sir George Don, Governor Designate, arrived to take command of the fortress. The medical authorities advised him that it was unsafe to land and kept him on ship in the bay for six weeks before allowing him to come ashore. By all accounts Sir George was an active, almost impetuous man and one can imagine him pacing up and down the restricted area of the quarter deck for six weeks. Certainly he must have thought deeply of the problem, for when he finally landed he set about reorganising the medical facilities of the town, including the building of a hospital for civilians.

The hospital was built with funds from the Colonial Government and opened in 1816. The site chosen was almost exactly where the old hospital of St John of God had been, so that a continuity—albeit somewhat slender—was maintained. This hospital was organised in three divisions according to the chief religions of the population. There were Roman Catholic, Protestant, and Hebrew divisions, and each part was supported and managed by contributions from the corresponding sections of the community, supplemented by special rates and duties levied for the purpose. We do not know much of the activities and quality of service the establishment offered or even how it was staffed, except that Roman Amiel, who had been a prominent surgeon in Wellington's Army during the Peninsular War, became the first medical officer in charge. Gibraltar seems to have been an unhealthy place in those early years of the 19th century. Though yellow fever epidemics did not reappear other fevers came from time to time and cholera was a constant threat; indeed, the last cholera epidemic to hit the town was in 1885, when it caused 26 deaths.

Sieges and Trafalgar

The Rock underwent many sieges but the one that has attracted most attention is the Great Siege of 1779-83. This siege is famous for many reasons. Firstly, it was a perfect set-piece battle: the Franco-Spanish allies prepared their armies and positions carefully for months before beginning hostilities, while the defenders raised walls, batteries, and bastions to withstand them. Many of these encircled the city and are still standing today. Secondly, it was the most protracted and serious of Gibraltar's many sieges. Thirdly, the defence of the Rock was almost the only successful British venture in the otherwise disastrous American War of Independence. While the Rock held British honour was safe.

Medically the problems were not predominantly the result of shot and shell. Bombardment seems to have been particularly ineffective, for though enemy batteries hurled 272 670 projectiles and destroyed all but a handful of houses in over four years they actually killed only 333 and wounded 800 others. Disease claimed many more. Smallpox, yellow fever, typhus, and a form of dysentery popularly known as the "bloody flux" took off 536 military victims alone, while starvation and scurvy were responsible for countless other deaths, especially

among civilians. Scurvy was particularly important in sieges of the period. Gibraltar was fortunate that at the very height of its ordeal, when hundreds of men lay in hospital with bleeding gums and sores, a Danish coaster carrying a load of oranges and lemons was captured and brought into port. The medical resources of the fortress were clearly inadequate to deal with an onslaught of such proportions: there were not enough hospital beds, too few cradles (as stretchers were called), and insufficient dressings. Some surgeons were reported to be afraid to venture out of their bomb-proof shelters but on the whole they acquitted themselves honourably enough. They had to work with unseemly haste, dressing, amputating, and trepanning, so that, in the words of an observer, they were little better than butchers. But because they so often worked in advanced and vulnerable positions their numbers were reduced and short courses of training were given to sergeants and corporals, particularly in order to enable them to staunch the flow of blood. The combination of hunger with no prospect of relief must have created intolerable psychological stresses, and, though the state of discipline in the garrison was generally high, theft, looting, and desertion occurred daily and were as a rule punished by hanging.

Strangely—or perhaps not so strangely—wise foresight seems to have ensured a plentiful supply of alcoholic beverages throughout these troubled times, and several soldiers are recorded as having died of alcoholic excess while celebrating some local victory.

Trafalgar, on the other hand, was anything but a local victory. Many of the injured and near dying of both sides were brought to Gibraltar after the battle. The injured were taken into the Naval Hospital and many died in the ensuing days. They were buried with full military honours in a small plot of ground appropriately named Trafalgar Cemetery. Contrary to common belief, the body of Nelson was not brought ashore but the cask in which it lay was drained of brandy, and spirits of wine were run in. After a week, with masts refitted and riggings repaired, the *Victory* sailed for home: with her she carried all but five of the wounded she had landed and the body of their Admiral, destined for St Paul's Cathedral.

Civilian hospitals since 1814

The establishment of the civil hospital introduced another dichotomy into the practice of medicine in Gibraltar. For the next century and a half hospital medicine was supported by the State and largely free to the consumer, while general practice was almost synonymous with private practice and became very lucrative as the 19th century progressed. Certainly there seems to have been enough private work to go round. Thus in 1856 when naval ships and transports returning from the

FIG 2—The Civil Hospital, which was completed in about 1884.

FIG 3—King George V entering the Colonial Hospital (now St Bernard's Hospital) during his visit to Gibraltar in 1935.

Crimean War put into Gibraltar to land their hundreds of sick and injured there were complaints that the military surgeons at the hospital gave them scant attention, "all their time being taken attending to rich civilians and Jews." Doctors with qualifications from Britain, Spain, France, and Ireland vied with each other for practices, which in time became exclusively restricted to civilian practitioners.

The great medical advances of the 19th century soon made the old civil hospital inadequate and extensive rebuilding took place from 1880 onwards. Gibraltar was lucky in finding an energetic partnership in Lord Napier of Magdala, the Governor, and Captain Buckle, Chief Government Engineer. Under their supervision the hospital was reconstructed to roughly the shape it assumes today. The denominational divisions were abolished, and the whole hospital, supported by central Government funds, came under a new medical department as the Colonial Hospital. From the early years of the 20th century, operating theatres, an x-ray department, a maternity department, sisters' quarters, and other new features have been added on. The final change came in the '60s when, in keeping with historical trends, the word "Colonial" was dropped from the title, and the hospital was renamed St Bernard's Hospital (after the patron saint of Gibraltar).

The Colonial Hospital tended to be associated in the minds of Gibraltarians with surgical procedures, and in the era before advanced clinical investigations became a medical necessity medicine tended to be practised chiefly at home. But in the late '30s the need for a sanatorium type of hospital where diseases such as tuberculosis could be treated became clear. A ladies' committee raised the necessary funds by public subscription

and in 1939 the King George V Memorial Hospital was built for this purpose. War intervened shortly after the hospital was finished, and in 1940-45 it was used as the 10th Military hospital, but with the advent of peace the new hospital took up its original role and the treatment of tuberculosis—a scourge during the war years—was begun in earnest. How successful this campaign was may be judged by the fact that by the late '50s the hospital was converted into a general medical hospital, cases of tuberculosis now being few and far between.

Mental health

The first record of the problem of mental health in Gibraltar is an entry dated 13 February 1704 in the Register of Deaths of St Mary's Church: Juan Gomez, aged 30, is said to have died after being tied to a bridle for 5 years on account of his having lost his reason. Scant attention was given to the mentally sick in those days, but during the early years of British occupation those who became a public nuisance by reason of insanity were confined in a military prison on the site of the old convent of Santa Clara. In the early 19th century these unfortunate people, at last regarded as patients, were accorded a special section within the newly built debtors' prison.

In 1886, however, Captain Buckle designed the first purpose-built mental hospital in Gibraltar—St Joseph's Hospital. This imposing building, looking like a fortress surmounted by twin towers, was in use until 1971. Given the custodial type of treatment that was practised during these years it fulfilled its function well. In 1971 a new medical wing was built next to St Bernard's Hospital to provide medical as distinct from surgical facilities. King George V Hospital was then renovated and adapted to treat patients with mental illness on a more open hospital plan.

The position today

Medically the position today is very much the same as in Britain and most parts of Western Europe. Medicine at all levels is supported by the State, though some private practice still flourishes. A health centre employing six full-time general practitioners covers the general medical needs of the population; the capitation fee system did not seem practicable in Gibraltar and payment is by a fixed salary plus a small fee for each item of service. The hospital service includes St Bernard's Hospital, King George V Hospital, and a small isolation hospital: consultants and house officers are on similar contracts to those in Britain. Overall the pattern of medicine and the service offered to patients are broadly similar to those in the UK, as is the remuneration enjoyed by the profession. The Royal Naval Hospital provides the bulk of medical services to the Forces.

I read a report recently opposing the use of the antiprostaglandin drugs in treating osteoarthritis. What is the disadvantage of using such drugs?

In the past osteoarthritis has been regarded as a purely "degenerative" condition, but more recent studies indicate that an inflammatory component is often present. Treatment is based on a positive programme of exercise and activity (safeguarding the joint from injury, strains, and weight), together with drugs. Simple analgesics, such as paracetamol, are useful for symptomatic relief, and non-steroidal anti-inflammatory agents (which appear to inhibit prostaglandin synthesis) should be reserved for those who are unresponsive to analgesics alone. The recent evidence showing an inflammatory component rationalises the use of "anti-prostaglandin" drugs, but the success of simple analgesics in many cases, combined with their lack of toxicity, makes them preferable in the first instance. There is

no place for giving systemic corticosteroids to patients with osteoarthritis.

Would the intradermal administration of yellow fever vaccine give the same immunity as the subcutaneous routes, and would the risk of encephalitis be reduced?

Yellow fever vaccine remains one of the safest vaccines, and there is no risk whatsoever of encephalitis after its use. Some years ago there were a few reports of encephalitis in infants who had received the vaccine below the age of 1 year. Since yellow fever vaccination has not been performed under 1 year of age there have been no reports of encephalitis, and it would therefore seem completely unnecessary to use the intradermal route, particularly as there is no local reaction.