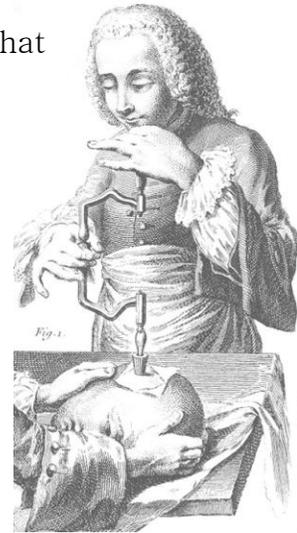


THE HISTORY OF SUTURING

Sometime between 50,000 and 30,000 B.C. eyed needles were invented, and by 20,000 B.C., bone needles became the standard that was not improved upon until the Renaissance. It is reasonable to assume that these needles were used to sew wounds together, because Neolithic (“of the ‘New’ Stone Age”) skulls have been found, showing that trepanning (a form of surgery where a hole is drilled or scraped into the skull) was used successfully. Evidence shows that the wounds must have been closed up after the procedure because there is bone growth inward from the edges of the hole; this means that the patient was not only alive at the time of the operation, but lived for a considerable period of time afterward.



The primitive men in the beginning of more modern times give examples of how early surgery was performed. Native Americans used cautery (the burning of the body to remove or close a part of it) and East African tribes would ligate (tie off) blood vessels with tendons and close wounds with acacia thorns pushed through the wound with strips of leaves wound around the two protruding ends in a figure eight. A South African method of wound closure uses large black ants to bite the wound edges

together, with their powerful jaws acting as Michel clips. The bodies



would then be twisted off, leaving the head in the place to keep the wound closed.

In more ancient times (1,900 B.C.), the king of Babylon,

Hammurabi, engraved his country's laws on a pillar. Some of these laws

related to surgical practice; one stated that "If a

physician should make a severe wound with an

operating knife and kill a patient or destroy an eye,

his hands shall be cut off." Because of this and

similar other laws, the Babylonian practice of

medicine declined so far that people with illness and

disease were carried into the market square so that they could get

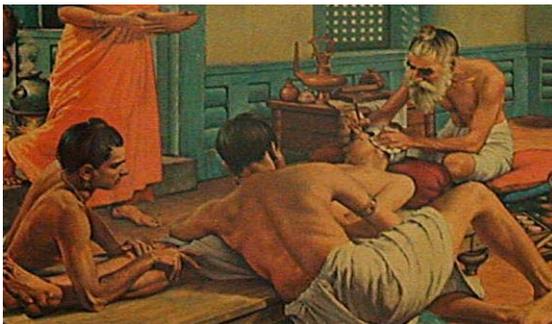
recommendations and advice from people who had already experienced

the illness.



The Mesopotamian civilizations are known to have been in regular

contact with the India and one Indian man wrote a surgical text which was



a great reservoir of information.

Susruta described how to perform, in

great detail, a tonsillectomy,

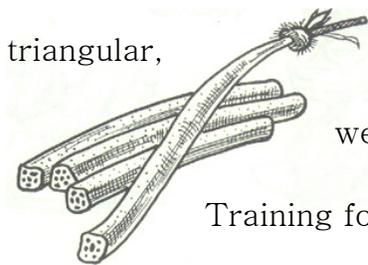
caesarean section, amputation,

rhinoplasty and the repair of anal fistulae. Rhinoplasty was a popular

operation since the punishment for adultery was having the offender's nose cut off. There were many different, yet successful, surgical procedures performed, such as the opening of the intestines and removal of any blockage, rinsed with milk, then lubricated with butter and then finally closed by the ant head method described before. Instruments were described in detail in this surgical text, including

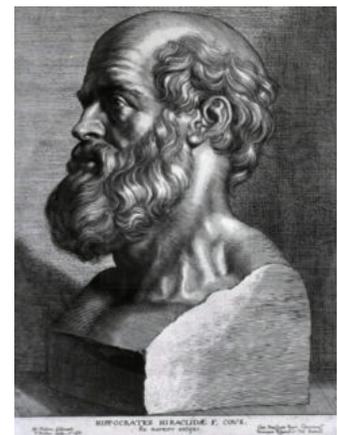


triangular, round-bodied, curved, or straight needles; sutures were made from hemp, hair, flax, and bark fiber.



Training for incisions was very important and they used melons, gourds, and animal bladders to practice suturing and lotus stems for ligating. It is obvious from this and other texts that Indian surgery was considerably ahead of any other early civilization and it can be assumed that much of Arabic, Babylonian, Egyptian, and Greek surgery techniques originated in India.

In the seventh century B.C., the Greeks began to found medical schools because of the great demand for surgical and medical attention; it was also at this particular time that medicine was finally recognized as a science. A Greek physician by the name of Hippocrates is considered to be one of the most outstanding figures in the history of medicine. His main contributions to surgery were his detailed clinical



descriptions and the discarding of treatments founded on tradition or wishful thinking rather than on rationality.

Sometime around 30 A.D., a medical encyclopedia was written by a Roman named Aurelius Cornelius Celsus. His work, *De Re Medicina*, tells the reader that sutures should be “soft, and not over twisted, so that they may be more easy on the part.” He is also credited with first substantiated mention of ligating by recommending it as a secondary means of stopping a hemorrhage.



Galen, an ancient Greek physician from A.D. 150, gained a sterling reputation from treating and suturing the severed tendons of gladiators, giving them a chance at recovery rather than the sure fate of paralysis. He was an authority on suture thread materials and has many recommendations on which material would be best for each sort of wound closure in his book *Del Methodo Medendi*. Also, Galen, along with Hippocrates, recognized two kinds of wounds: a clean wound and a dirty wound (which required drainage before healing could occur).

A Muslim scholar named Avicenna became known as the Prince of Physicians because at twenty years old, he had already written extensively on philosophy, natural history,



mathematics, law, and medicine (of which he was already an authority).

Another development in suturing was Avicenna's realization that some traditional materials had a tendency to break down rapidly; because of this, he invented the first monofilament suture by using pig's bristles.

Avicenna may have been the Prince of Physicians, but the Prince of Surgeons was undoubtedly Albucasis. In his first book, he recommended the indiscriminate use of cautery, but in his second book, the use of cutting instruments and sutures were implemented instead. In this book he described a technique called a "double suture" which is still used today.