

14 Medication

Early in human history, our ancestors discovered that certain **plants** could ease pain and cure illness. Prayer and magic came into it too, and symbolic actions such as drinking the blood of a warrior to take his strength, and using **leaves and roots** as medicine for body parts they somehow resembled, were logical extensions of the beliefs of the time.

The first pharmacopoeia (list of medicinal plants) was produced in 3,500BC by the Chinese emperor Shen Nung, and **herbal remedies** remained the basis for medicines for centuries. In the eighteenth and nineteenth centuries they were supplemented by frightening preparations of poisonous substances such as **mercury, arsenic, and phosphorous**, and used alongside **leeches, bleeding, and laxatives**. This period was many inventions and discoveries away from the **white coats, stethoscopes**, and the smell of **disinfectant** that characterize medical care today. However, the developments that went on did give rise to a new understanding of the chemistry and biology of the natural world, and eventually generated medicines that could be said to have changed the way people live: analgesics like Aspirin, anaesthetics, vaccinations, Penicillin and antibiotics, contraceptives, and Viagra.

Scientists who design and produce new drugs assume that a drug's effects are directly related to its molecular structure, and either **synthesize medicines** by reproducing the medicinally active parts of plants, or extract the medicinally active parts of plants and use them. Medicines are classified by:

- their **chemical properties**. The opioids are a well-known example of a chemical group of medicines, as are benzodiazepines and barbiturates.
- their **mode of administration**. Medications can be taken in a variety of different ways - **orally**, for example, in the form of pills, capsules, and liquid, **through the skin** via patches, by **subcutaneous** (under the skin) injection, or by **intravenous** (into a vein) injection.
- the **biological system affected**. For example, there are laxatives and antacids for the digestive system, and betablockers and anticoagulants for the cardiovascular system.

Medicines are either **over the counter** (bought from **pharmacies**), or **prescription** only (prescribed by a doctor), and they often have two names - a **generic name** and a **brand name**. 'Paracetamol', for example, is a generic name, but it is sold by different companies under different brand names (Panadol, Calpol, Anadin, etc).