

**BLACK'S
MEDICAL
DICTIONARY**

BLACK'S MEDICAL DICTIONARY

Edited by C. W. H. Havard, MA, DM, FRCP

Thirty-sixth edition

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PREFACE

Black's Medical Dictionary defines and explains a wide range of terms and concepts in use in medicine and in closely related subjects. It includes detailed accounts of many aspects of anatomy, physiology, pathology and therapeutics. It will prove valuable to all those working in fields drawing on medical practice, and to anyone interested in how the body works, and what is happening in medicine today.

This is the thirty-sixth edition of a book first published in 1906. In this edition thirty new sections have been added to topics varying from cluster headaches to cyclical oedema of women. The sections on dentistry, dermatology, diseases of the ear, nose and throat, ophthalmology and psychiatry have been rewritten by specialists in the particular field and I am grateful to Iain Laws, Colin Buckley, Neil Solomons, John Roberts-Harry and Chris Burford for their help in bringing these sections of the dictionary up to date.

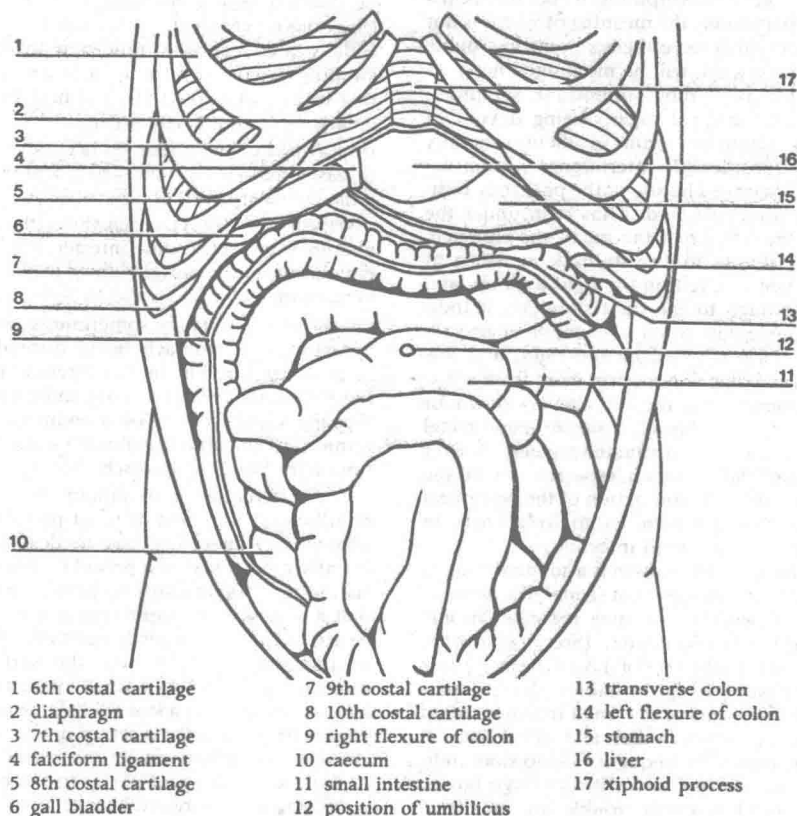
Although many completely new subjects have been added to this thirty-sixth edition of *Black's Medical Dictionary* and many more articles have been virtually rewritten, the intention is unchanged: to describe medical theory and practice as clearly and concisely as possible.

A

ABDOMEN is the lower part of the trunk. Above, and separated from it by the diaphragm or midriff, lies the thorax or chest, and below lies the pelvis, or basin, generally described as a separate cavity though directly continuous with that of the abdomen. Behind lie the spinal column and lower ribs which come within a few inches of the iliac or haunch bones; at the sides the protection afforded to the contained organs by the iliac bones and down-sloping ribs is still more effective; but in front the whole extent is protected only by soft tissues. The latter consist of the skin, a varying amount of fat, three layers of broad, flat muscle, another layer of fat, and finally the smooth, thin peritoneum which lines the whole cavity. The absence of rigidity allows the necessary distension when food is taken into the stomach, and the various important movements of the organs associated with digestion. The shape of the abdomen varies; in children it may protrude considerably, though if this is too marked it may indicate disease; in healthy young adults it should be either very slightly prominent or slightly indrawn, and should show the outline of the muscular layer,

especially of the pair of muscles running vertically (recti), which are divided into four or five sections by transverse lines; while with advance of age it is quite natural that a certain amount of fat should be deposited on and inside the abdomen.

Contents: The principal contents of the abdominal cavity are the digestive organs, i.e. the stomach and intestines, and the associated glands, the liver and pancreas. The position of the stomach is above and to the left when the individual is recumbent, but may be much lower in the erect position. The liver lies above and to the right, lying to a large extent under cover of the ribs, and occupying the hollow of the diaphragm, by which alone both it and the stomach are separated from the lungs and heart. Against the back wall on either side lie the kidneys, protected also to a great extent by the last two ribs; and from the kidneys run the ureters, or urinary ducts, down along the back wall to the bladder in the pelvis. The pancreas lies across the spine between the kidneys, and upon the upper end of each kidney lies a suprarenal gland. High up on the left and partly behind the stomach lies the spleen. The great blood-vessels and nerves, the absorbent vessels and the glands connected with them, lie on the back



Contents of the abdomen in position.

wall, and the remainder of the space is taken up by the intestines or bowels (see *INTESTINE*), the large intestine lying in the flanks on either side in front of the kidneys and crossing below the stomach from right to left, while the small intestine hangs from the back wall in coils which fill up the spaces between the other organs. Hanging down from the stomach in front of the bowels is the omentum, or apron, containing a considerable amount of fat, and helping to protect the bowels from cold and injury. In pregnancy the uterus, or womb, as it increases in size, rises up from the pelvis into the abdomen, lifting the coils of the small intestine above it.

The *pelvis* is that portion of the abdomen which lies within the bony pelvis (see *BONE*), and contains the rectum or end part of the intestine, the bladder, and, in the male the prostate, in the female the uterus, ovaries, and Fallopian tubes.

ABDOMEN, DISEASES OF: (See under *STOMACH. DISEASES OF; INTESTINE. DISEASES OF; DIARRHOEA; LIVER. DISEASES OF; PANCREAS, DISEASES OF; KIDNEY. DISEASES OF; BLADDER. DISEASES OF; HERNIA; PERITONITIS; APPENDICITIS; TUMOURS.*)

Symptoms: The symptoms of various diseases will be found under the above headings, and only some general symptoms of abdominal disease, or symptoms, the meaning of which is not plain, but which nevertheless point to trouble in definite organs, will be mentioned here.

PAIN: This is a most important symptom, because the internal organs being devoid of ordinary sensation, pain in them generally means a considerable interference with structure or function. The *site* of the pain may indicate the organ affected. Thus pain under the ribs on the left, or in the pit of the stomach, generally points to the stomach as being at fault. When it is felt on the right high up, and shoots through to the right shoulder, it indicates trouble connected with the liver or gall-bladder. Pain situated on the right, and low down in the iliac region, may arise from a diseased appendix. On the left, and low down, or at the exit of the bowel, it means some rectal trouble. Finally, pain situated vaguely all over the front of the abdomen, especially round the navel, points to inflammation of the peritoneal lining of the abdomen, or to irregularity in movement of the small intestine.

The *character* of the pain is also important. A dull, aching pain is not generally serious, though, if persistent, it may indicate chronic peritonitis or obstruction. (See *PERITONITIS; and INTESTINE. DISEASES OF.*) A twisting, griping pain is generally, eg. in babies, due to spasmodic movements of the small intestine, often produced by errors in diet, and called colic. A straining pain with frequent calls to stool indicates irritation low down in the large bowel. The pains of stomach trouble are of varied nature. (See *DYSPEPSIA.*) Sudden, colicky, agonizing pain is often due to the passage of a gall-stone, if situated high up on the right, shooting

through towards the back, or to the passage of a renal calculus, if shooting from the back down into the groin. Pain of a dull character slightly to the right of the pit of the stomach, especially when it is relieved by taking food, suggests some trouble in the duodenum.

TENDERNESS on pressure is generally a sign of inflammation either of an organ situated beneath the tender spot or of the peritoneum. (See *APPENDICITIS; PERITONITIS.*)

VOMITING is an important symptom. (See *VOMITING.*) When due to irritation of the stomach, it usually ceases as the contents of this organ are brought up. If it persists, it may be due to some obstruction in the bowels, or may be of nervous origin, eg. in sea-sickness, or brain tumour, and have no direct connection with the abdomen.

DIARRHOEA is another important symptom, and may indicate serious trouble. (See *DIARRHOEA.*)

SWELLING of the abdomen may be so marked as to call the patient's attention to it. This may be due merely to excessive deposit of fat, especially in elderly people - for example, in women at the menopause. (See *CORPULENCE; DIET.*) Enlargement, of course, occurs in pregnancy. The abdomen in habitual constipation may become more distended, partly by accumulation of gas, or the enlargement may be due to chronic obstruction of the bowels. (See *CONSTIPATION; and INTESTINE. DISEASES OF.*) Finally, a collection of fluid may produce the swelling (see *DROPSY; LIVER. DISEASES OF; HEART. DISEASES OF; PERITONITIS*), or it may be due to enlargement of a single organ.

INDRAWING of the abdomen occurs in wasting diseases, and also to a marked extent in meningitis. (See *MENINGITIS.*)

DISTENSION OF THE VEINS on the surface of the abdomen indicates some interference with the circulation in the portal vein or in the inferior vena cava.

VISIBLE MOVEMENTS are sometimes seen, due to the bowels or stomach being distended and contracting forcibly in the attempt to drive their contents onwards. They indicate (unless they are visible merely on account of extreme thinness of the abdominal wall) some obstruction in the bowel or stomach. (See *PERISTALSIS.*)

The differentiation of abdominal diseases is often one of the most difficult problems with which even an expert has to deal, and frequently it is only after a period of observation, lasting in difficult cases perhaps some weeks, that a diagnosis of approximate accuracy can be arrived at. This is partly due to the difficulty or impossibility of feeling the surface and dimensions of the contained organs, eg. the kidneys, especially in stout people; partly to the vagueness of symptoms set up in organs which are very little sensitive to even extreme changes in their structure; and partly to the readiness with which the organs change their relative positions, and to the great changes in shape and position often brought about by previous disease.

Treatment: Details of treatment are given under the headings of the various diseases. On the whole, people are rather too much given to regarding abdominal symptoms as trivial and amenable to home treatment. In many cases incurable dyspepsia would have been got rid of in its early stages if its symptoms had not been neglected, and patients with acute obstruction of the bowels may die because a dose of castor oil was taken when a doctor should have been consulted. In this connection one may say that whenever the three symptoms of (a) abdominal pain, (b) vomiting or retching, and (c) stoppage of the bowels for a day or two, or stoppage followed by a little diarrhoea, have occurred together, the case demands skilled medical attention. If severe abdominal pain is directly traceable to some dietetic indiscretion, the offending material should be got rid of speedily by an emetic, if it is still in the stomach (see EMETICS); or by a purgative if the symptoms are referable to the bowels (see PURGATIVES). If the pain is gripping in character, eg. in babies, relief is often given by pressure; thus nurses often lay their charges stomach downwards across the arm, or adults get some relief by lying face downwards on a pillow. (See COLIC; LEAD-POISONING.) The application of heat, in the form of a hot-water bottle, may also give relief. When the pain is agonizing, stronger remedies are necessary. (See COLIC.)

ABDOMEN, INJURIES OF: Despite the exposed nature of the abdomen to the front and the thinness of the wall covering the viscera, it is surprising how seldom blows and crushes damage the contained organs. This is explained by the fact that the firm muscles, which are perhaps half an inch (12mm) thick, offer the same type of protection as would be given by a slab of rubber of like thickness tightly stretched, while the fat still further dissipates the effect of violence. When a kick or blow causes rupture of an organ, the violence has generally been unexpected, and the muscles have been surprised in a lax condition. It is true that instantaneous death may follow a comparatively trivial blow on the epigastrium or pit of the stomach, and this is due to shock (see SHOCK) caused by injury to a nerve-plexus situated in the back of the abdomen in that region. Rupture of the liver, kidney, or spleen may occur, with haemorrhage into the surrounding tissues, from severe crushes, from falls from a height, road accidents, etc.; but these are not necessarily fatal unless some large blood-vessel is torn. Rupture of the bowel occasionally follows a blow or wound and is almost necessarily fatal in a few days, unless the abdomen is opened by a surgeon and the torn bowel stitched within a few hours of the accident.

People run over by vehicles are liable to have the bladder ruptured. This occurs especially in the case of children, and it happens only when the bladder is full, or nearly so, of urine. In such a case the inability to pass water soon after the accident, provided that it was not passed for

some hours previously, or the passage of blood, indicates the necessity of a speedy operation to stitch the torn bladder.

Straining to lift a weight beyond the strength, or excessive straining at stool, may force a loop of the intestine through the muscular part of the abdominal wall, so producing a hernia or rupture. (See HERNIA.)

ABDOMEN, REGIONS OF: For convenience of reference the abdomen is divided into regions by artificial lines. Two are vertical, passing through the middle of the inguinal ligament, a band which crosses the groin obliquely and divides thigh from abdomen; and two are horizontal: the substernal plane which passes through the lowest part of the costal margin, and the intertubercular plane which passes through the most outwardly projecting points of the iliac or haunch bones. These divide off nine regions named as follows: Epigastrium or pit of the stomach (E), two Hypochondriac regions (H), Umbilical or Navel region (U), two Lumbar or Loin regions (L), Hypogastric region (Hy), and two Iliac regions or Groins (I). The inguinal region on each side is the lower part of the hypogastric region. This contains the inguinal canal which pierces the abdominal wall obliquely.

ABDUCENT NERVE is the sixth nerve rising from the brain and controls the external rectus muscle of the eye, which turns the eye outwards. It is particularly liable to be paralysed in diseases of the nervous system, thus leading to an inward squint.

ABLATION means the removal of any part of the body by a surgical operation.

ABORTIFACIENT is a drug which causes artificial abortion.

ABORTION or **MISCARRIAGE**, means the separation and expulsion of the contents of the pregnant uterus before the 28th week of pregnancy. The frequency of abortion is not known, but it is estimated that 10 to 15 per cent of pregnancies end in abortion. The common time for abortion to occur is from the 8th to 13th week of pregnancy.

Causes: The cause of the abortion may be found in the mother or in the germ cells, or in some completely extraneous factor.

So far as the mother is concerned, the most common cause is an abnormality of the hormonal balance which controls the course of pregnancy (qv). The main defect is a lack of progesterone (qv). This hormone is secreted by the corpus luteum (qv) in the early weeks of pregnancy and subsequently by the placenta (qv). The function of progesterone is to ensure the safe embedding of the fertilized ovum in the mother's uterus (or womb), and then to ensure that the uterus does not start contracting until the time for labour is due. It is

thus obvious why a defective supply of progesterone can result in abortion.

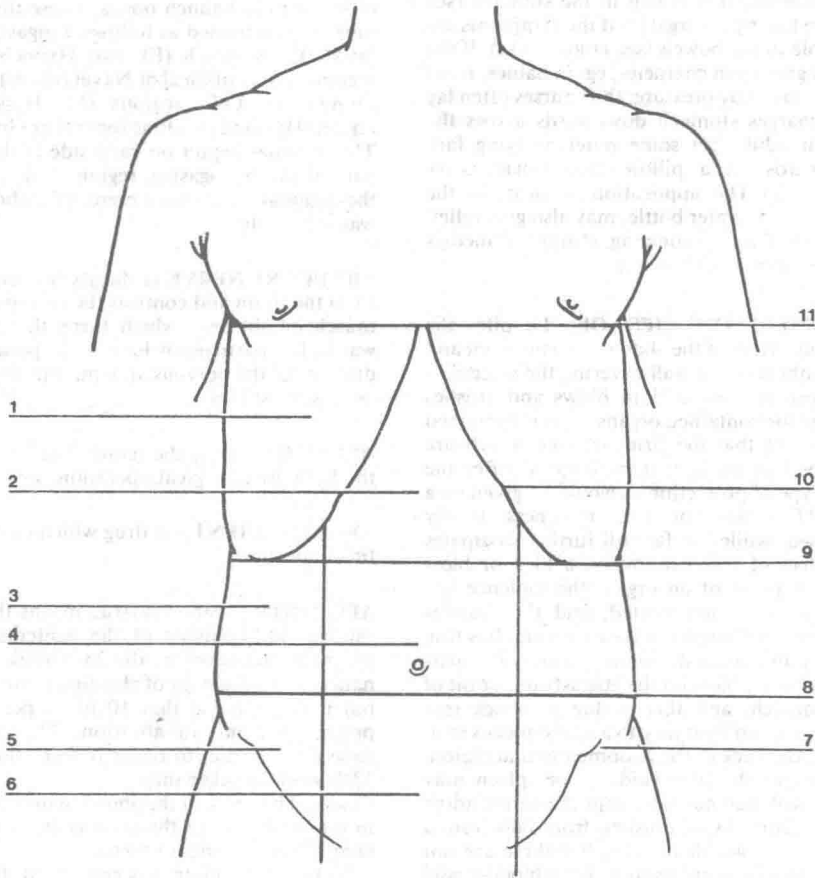
Other maternal causes of abortion include disturbances of other endocrine glands, or hormones, such as hypothyroidism, or myxoedema (qv), and diabetes mellitus (qv); high blood-pressure; glomerulonephritis (qv); any acute illness; congenital abnormalities of the uterus, and any severe emotional disturbance.

Several drugs have achieved a popular reputation as abortifacients, or inducers of abortion, but the reputation is usually fallacious. It is incredibly difficult to induce an abortion by means of drugs in a healthy pregnancy. This even applies to pills containing lead, though there is no doubt that lead can induce an abortion.

Any defect in the germ cells, whether ovum or spermatozoon, may lead to abortion if it is severe enough to cause gross malformation of the embryo.

Finally, reference must be made to criminally induced abortion. This may be attempted in a variety of ways, particularly the introduction of fluids or instruments into the uterus. It is a dangerous practice, as shown by a Ministry of Health investigation into 294 fatal abortions. At least 199 of these were criminal abortions, 105 (53 per cent) of whom died from sepsis. (See also BLIGHTED OVUM.)

Treatment: The treatment depends largely upon whether the abortion is threatened or inevitable. In the case of the former, often a few days' rest in bed is all that is necessary, following which the mother takes particular care at the



- | | |
|------------------------|---------------------------------|
| 1 hypochondriac region | 7 anterior superior iliac spine |
| 2 epigastrium | 8 intertubercular plane |
| 3 lumbar region | 9 subcostal plane |
| 4 umbilical region | 10 tip of 9th costal cartilage |
| 5 iliac region | 11 xiphisternal plane |
| 6 hypogastric region | |

Regions of the abdomen.

next two period times. If an abortion is inevitable, the treatment is that of a miniature labour. More complicated, and requiring skilled supervision, is the treatment of what is known as an incomplete abortion (that is, when part of the foetus and/or placenta have been retained in the uterus), and – most dangerous of all – the treatment of a septic abortion.

Therapeutic abortion: Abortion, or termination of pregnancy, is a criminal offence in Britain, but the whole outlook on abortion was changed by the Abortion Act, 1967, which came into force in 1968, and created exceptions to the Offences Against the Persons Act, 1861, which made it an offence 'unlawfully to administer any poison or other noxious thing or to use any instrument or any other means whatsoever with intent to procure a miscarriage', or to supply any such poison or instrument for this purpose. Under the terms of the 1967 Act, a pregnancy can be terminated: in other words, an abortion can be induced by a 'registered medical practitioner if two registered medical practitioners are of the opinion, formed in good faith, (a) that the continuance of the pregnancy would involve risk to the life of the pregnant woman or of injury to the physical or mental health of the pregnant woman or any existing children of her family greater than if the pregnancy were terminated; or (b) that there is a substantial risk that if the child were born it would suffer from such physical or mental abnormalities as to be seriously handicapped'.

In 1986, 157,000 legal abortions were carried out in England and Wales.

ABRASION means the rubbing off of the surface of the skin or of a mucous membrane due to some mechanical injury. Such injuries, though slight in themselves, are apt to allow entrance of dirt containing organisms and so to lead to an abscess or some severer form of inflammation.

Treatment: The most effective form of treatment consists in the thorough and immediate cleansing of the wound with soap and water. An antiseptic such as 1 per cent cetrimide can then be applied, and a sterile dry dressing.

DENTAL ABRASION is a form of trauma in which the teeth are worn away. This may be by bruxism or excessive use of the toothbrush, particularly if an abrasive toothpaste is used. It usually occurs at the junction of the crown and root of the tooth and is worst on the upper left teeth in a right-handed person.

ABSCESS is a localized collection of pus. A minute abscess is known as a pustule (see PUSTULE), a diffused production of pus is known as cellulitis or erysipelas (see ERYSIPELAS). An abscess may be acute or chronic.

ABSCESS, ACUTE: An acute abscess is one which develops rapidly within the course of a few days or hours. It is characterized by a definite set of symptoms.

Causes: The direct cause is various bacteria. In a few cases the presence of foreign bodies, such as bullets or splinters, or contact with poisonous plants, such as poison ivy, may produce abscesses, but these foreign bodies may remain for life buried in the tissues without causing any trouble provided they are not contaminated with bacteria or other micro-organisms.

The micro-organisms most frequently found are *staphylococci*, and next to these *streptococci*, though the latter cause more virulent abscesses, or in general the more serious condition of erysipelas or cellulitis. Other abscess-forming organisms are *Pseudomonas pyocyanea*, which produces blue or greenish pus; and *Escherichia coli*, which lives always in the bowels, probably aiding digestion, and under certain conditions wanders into the surrounding tissues and produces abscesses.

The mere presence of micro-organisms is not sufficient to produce suppuration (see IMMUNITY; and INFECTION); indeed streptococci, which upon occasion produce most disastrous effects, can often be found on the skin and in the skin glands of perfectly healthy individuals. Given the proper micro-organisms in the tissues, whether they will produce abscesses or not depends upon the virulence of the organism at the time, and the resisting power of the individual. In the case of bad health, as in diabetes mellitus, fever, Bright's disease, the tissues are less resistant, and cold, injury, or previous disease of a part renders it less able to cope with bacterial invasion. On the other hand, good food, exercise, and a healthy open-air life help to render the individual more or less immune to the ill-effects of these bacteria. They are communicated, principally in a virulent form, from one wound to another; but they live also in the air, in dust, and in water. They enter the body generally by a wound, but may also come through the mucous membrane of the intestine when this is rendered less resistant by conditions such as appendicitis; they may also pass through the mucous membranes of the nose, mouth, respiratory and urinary passages, and cause local abscesses, or even through the skin's minute lubricating glands.

When bacteria have gained access, for example, to a wound, they rapidly multiply, and, by the formation of poisonous substances, irritate the surrounding tissues, and so produce local dilatation of the blood-vessels, slowing of the blood-stream, and exudation of blood corpuscles and fluid. The leucocytes, or white corpuscles of the blood, collect around the invaded area, apparently under some attracting influence of the bacteria (chemotaxis), and destroy the latter either by actually devouring and digesting them (see PHAGOCYTOSIS), or by forming some substances which cause their death. These white corpuscles undergo a granular fatty degeneration, and in turn die, and form the white constituent of the pus (pus corpuscles). Meanwhile, the area where these changes have been taking place has been cut off from communication with the rest of the body by

plugging of the blood and lymphatic vessels around it. The tissues of the affected area die and are digested by the action of the white corpuscles, and the cavity so produced is distended by fluid and by the white corpuscles which flock to it in increasing numbers till all bacteria have disappeared. The abscess is shut off from healthy tissue by what is known as the abscess wall. The bacteria may find their way along a vessel to some little distance, where the same process takes place, and these secondary abscess cavities may coalesce with the original one.

Symptoms: The classic symptoms of inflammation are *rubor, calor, tumor* and *dolor*: i.e. redness, warmth, swelling and pain; and, besides these, when the abscess is well developed, a considerable amount of fever, perhaps with delirium, sets in, and the temperature rises to 38° to 40°C (100° to 104°F). When the cavity containing fluid has been formed, a sign, known as fluctuation, can be made out. Later, as the abscess is distended almost to bursting, the skin becomes reddish blue, glazed, and thin; and this is known as 'pointing' of the abscess; or if the abscess is very deep-seated the skin over it becomes swollen, and pits on pressure. The lymphatic glands in the neighbourhood may be swollen and tender in an attempt to stop the bacteria spreading to other parts of the body. Immediately the abscess is opened, or bursts, the pain disappears, the temperature falls rapidly to normal, the elasticity of the tissues around the cavity diminishes its bulk, and the healing of the small space left proceeds rapidly. If, however, the abscess discharges into an internal cavity, such as the bowel or bladder, it may heal very slowly, and the reabsorption of its poisonous products may cause general ill-health for long. When an abscess is deep-seated an important sign for diagnosis is provided by examination of the blood. (See LEUCOCYTOSIS.)

Treatment: As soon as there is evidence that pus has formed, we know that the bacteria has been destroyed, and, as the further formation of pus is designed simply to burst a passage to the exterior, we can relieve pain, stop unnecessary destruction of tissue, and shorten the process by opening the abscess. This is done as soon as there is evidence from fluctuation, redness or pitting of the skin that pus has formed. Previous to this, an injection of penicillin, or some other antibiotic to which the causative micro-organism is sensitive, is given.

When the abscess is opened two things are attended to:

(1) That important structures such as arteries in the neighbourhood are not damaged.

(2) That the opening is as far away as possible from a new source of infection like the mouth or anus.

Current practice is to scrape out the abscess after draining its contents and then to close it immediately by sutures. Some surgeons continue to give a dose of the antibiotic daily for five days after operation. Others contend that

in the vast majority of cases, only one injection of antibiotic is necessary – preceding the opening of the abscess.

Special varieties of acute abscess: ABSCESS IN ABDOMEN: When this occurs in the iliac region it is generally a result of appendicitis (see APPENDICITIS); when in the lumbar region it may be the result of this disease 'pointing' backwards, or may be the result of inflammation in the loose tissue around the kidney (perinephric abscess). In the upper part of the abdomen it is known as a subphrenic abscess, and may be the consequence of ulceration from the stomach or bowels, or of abscess in the liver. All these conditions are very grave.

ABSCESS IN BONE (See BONE, DISEASES OF).

ABSCESS OF BREAST (See BREAST, DISEASES OF).

CEREBRAL AND CEREBELLAR ABSCESS: These are apt to come on suddenly in cases in which the middle ear is diseased, generally after long-standing discharge from the ear. The stoppage of the discharge in such a case is a warning of danger. (See EAR, DISEASES OF.)

ABSCESS IN THE FINGER (See WHITLOW).

ILIAC ABSCESS (See APPENDICITIS).

ABSCESS OF THE JAW (See GUMBOIL).

ABSCESS IN THE KIDNEY (See KIDNEYS, DISEASES OF).

ABSCESS OF THE LUNG may follow pneumonia or the drawing of some foreign body, such as food, down the windpipe. Being deep-seated, its presence may be hard to diagnose. It may burst either into a bronchus, when pus will be spat up, or into the pleural cavity. (See LUNG DISEASES.)

ABSCESS IN THE PLEURAL CAVITY is known as empyema. (See EMPYEMA.)

ABSCESS, CHRONIC: A chronic abscess is one which takes weeks or months for its development. In the majority of cases it is tuberculous.

Causes: Some acute abscesses, instead of bursting, may settle down, become surrounded by dense fibrous tissue, and so form chronic abscesses, but these are rare. Abscesses may form in the liver as a complication of amoebic dysentery. (See DYSENTERY.) The tubercle bacillus, or *Mycobacterium tuberculosis*, however, is generally the cause. How it obtains entrance is still in dispute; in the case of abscesses of the neck it is probably through the throat or tonsil, and in the case of abscesses elsewhere, through the circulation from the lung or intestinal canal, owing to infected air or food. A common source of infection is milk which has not been boiled or pasteurized. Abscesses arise most commonly from tuberculous deposits in glands or bones, especially in the vertebrae or bones of the spine, the epiphyses or large ends of long bones near a joint, and the ribs. They may start also in the synovial membranes, i.e. membranes lining a joint (see JOINT DISEASES), in the loose tissue beneath the skin, quite apart from disease of any other structure, and, not uncommonly, in the testicle.

Symptoms: There is far less in the way of symptoms than in acute abscess. Sometimes the swelling is noticed by accident; it is not hot, red or in general painful, as is an acute abscess. The skin becomes red only a short time before the abscess bursts. If the temperature is taken every four hours it will generally be found that there is a slight rise either in the forenoon or late afternoon. If the abscess is untreated it generally enlarges till it bursts, then a ragged wound is left, infection with other organisms takes place, and the resulting sinus with 'mixed infection' becomes extremely difficult to heal.

Character of the pus: The fluid is thin and watery (not thick and white as in an acute abscess) and contains little curdy masses. It is not really 'pus', as pus corpuscles are almost entirely absent, and only fragments of the dead tissues are found under the microscope.

Treatment: For the purpose of discussing treatment it will be assumed that the abscess is tuberculous.

The introduction of the anti-tuberculous drugs, eg. streptomycin (qv), rifampicin, ethambutol and isoniazid (qv), has revolutionized the outlook in tuberculous abscesses and has removed many of the hazards which were attached to them at one time. The general rules for improving the health of the individual and resting the affected part still apply, but the administration of these drugs shortens the period of treatment and convalescence very considerably. Further details will be found under **GLANDS;** and **JOINT DISEASES.**

Special varieties of chronic abscess: **ABCESS OF THE LIVER:** This occurs in persons who have been the subject of amoebic dysentery (see **DYS-ENTERY**), frequently after returning in apparently fair health to a temperate region where this form of dysentery does not occur. The liver becomes enlarged and tender, and there is a degree of ill-health and slight jaundice. Amoebiasis, either in the form of amoebic dysentery or liver abscess, is usually cured by oral metronidazole (Flagyl). A parental preparation is also available. The drug has an antabuse effect so that alcohol should not be taken during treatment with metronidazole. An alternative method of treatment if metronidazole is not available or is not effective is emetine which should be given by subcutaneous injection. Because of possible cardiotoxicity the patient should be in bed when receiving emetine. Chloroquine is another drug effective against amoebic abscess; it requires to be given for 14 days. Sometimes if the liver abscess is large and painful, aspiration (qv) is required to prevent perforation and to hasten recovery. The incidence of amoebiasis can be reduced in the tropics by not eating fresh uncooked vegetable, by not drinking unboiled water, and by adding iodine-releasing tablets to drinking water.

ISCHIO-RECTAL ABCESS: This forms at the side of the rectum. Whether it bursts or is opened, it is very difficult to keep clean, on account of its position, and so forms a sinus; or, if it opens

into the bowel, a fistula. (See **FISTULA**.) It may occur late in a case of pulmonary tuberculosis, but may also occur as the first manifestation of tuberculosis.

RETROPHARYNGEAL ABCESS: This is due generally to disease of the spinal column in the neck. It is opened from the side of the neck; otherwise it bursts into the mouth, and the discharges from it lead to rapid falling-off in health, and to death unless efficient treatment is instituted.

ILIO-PSOAS ABCESS: This arises generally from tuberculous disease of the spinal column in the lumbar region, and, though this may cure itself, the abscess bursts into the sheath of the psoas muscle and passes along the muscle through the iliac region into the thigh, on the inner side of which it generally 'points'. Its early symptoms resemble those of hip-joint disease. (See **JOINT DISEASES**.) The opening and scraping of such an abscess often require large incisions in the thigh, groin, and lumbar region, and if the wound becomes the seat of mixed infection the resulting sinus may last months or years. Fortunately, the introduction of anti-tuberculous drugs has reduced the risk of this very considerably.

ACTINOMYCOTIC ABCESS: This form of chronic abscess occurs about the jaw or mouth. (See **ACTINOMYCOSIS**.)

ABSINTHISM: Absinthe is a greenish liquor prepared by steeping herbs, especially anise and wormwood, in alcohol for several days. It was first introduced into France by soldiers stationed in Algiers between 1830 and 1850, for whom it had been prescribed as a febrifuge (qv), and its employment spread thence into other countries. Its use becomes a habit like that of alcohol, but its effects are more demoralizing. Its habitual use brings on tremors and paralysis, in the arms especially, with delusional insanity.

ABSTRACT: This is a dry powder produced by extracting the active principles from a crude drug with strong alcohol, mixing with sugar of milk, and drying. Abstracts are standardized so as to be twice the strength of the crude drug.

ACACIA GUM, or **GUM ACACIA,** is a gummy exudation from various species of the acacia tree, which, dissolved in water to form mucilage, is used in coughs and sore throat and in states of irritation of the stomach and bowels.

ACANTHOSIS NIGRICANS, is a darkly pigmented verrucous skin change, usually around the neck and axilla. It may be inherited but is most commonly acquired and is associated with adenocarcinoma, usually of the stomach (see **CANCER**), and certain hormonal disorders such as the polycystic ovary (qv), Addison's disease (qv) and Cushing's syndrome (qv).

ACAPNIA means a condition of diminished carbon dioxide in the blood.

ACARUS: The group of animal parasites which includes *Sarcoptes scabiei*, the cause of the skin disease known as Itch, or Scabies. This parasite used to be known as *Acarus scabiei*. (See **ITCH**.)

ACCIDENT PREVENTION IN THE HOME: Over 800,000 accidents in the home requiring emergency treatment are estimated to occur each year in England and Wales. Such accidents in the home are most liable to occur in the young and the old.

In *children* the type of accident varies to a certain extent with age. Choking, and suffocation from food or secretions are the commonest causes of accidents in children under the age of 1 year. This is why there should be no pillow in a baby's cot or pram. When learning to walk there is a tendency to fall, and this may result in a serious accident if the fall is into a fire or a full bath. As inquisitiveness develops, accidents may occur from pulling a saucepan of hot food off the kitchen stove or from sampling medicines. Prevention of burns is of paramount importance. Under the Heating Appliances (Fireguard) Act 1954 all new gas and electric fires must be guarded, but there are still too many old-fashioned gas and electric fires in use without adequate guards. The fireguard mesh must be small enough to exclude little fingers, and the fireguard must be well away from the heated element. Modern paraffin heaters are self-extinguishing if tilted more than 45 degrees. It is now an offence to sell nightdresses made of readily ignited material. Cotton and rayon and the man-made fibres, Acrilan, Courtelle and Orlon, are easily set on fire. Nylon, Terylene and the heavier woollen fabrics are more resistant. The major fire-risk is the wide-skirted dress, apron and nightdress. Girls as well as boys should wear pyjamas. To prevent children poisoning themselves, all medicines, whether tablets or liquid, must be kept in locked medicine cupboards. A point to be remembered here is that the common practice of parents 'bribing' their children to take their medicine as a sweet may have unfortunate, if not fatal, consequences if the child finds the bottle and demolishes the contents on the ground that they are sweets. All paints, polishes, pesticides, petroleum products, turpentine, garden fertilizers, disinfectants and the like must be kept well out of reach. To avoid burning accidents in the kitchen crawling and toddling children should be firmly banned from the kitchen during cooking operations. Falls on stairs are the most dangerous. These should be avoided by having a gate at the top and bottom of the stairs. (See also **POISONS**.)

In *old age* falls are the major cause of accidents, and they are particularly dangerous at this age because of the ease with which the limbs are broken. Old bones tend to be fragile (see **OSTEOPOROSIS**), and a fall in old age that would cause no more than bruising in younger life may well result in a broken arm or leg. Prevention consists predominantly of a well-designed home. Stairs should be shallow,

carpeted and have a handrail, or preferably two. There should be no polished floors or worn-out mats. To prevent slipping, mats should have a rubber-backed underlay. There should be no steps leading down into a room. Lighting must be adequate with easily accessible switches. Central heating is essential for winter warmth. The bath should be shallow with a slip mat inside and outside, and there should be handles on each side for ease of getting in and out. To prevent burns, fireguards and fire-resistant clothes are just as essential as in childhood, and smoking in bed should be discouraged. The risk of poisoning can be reduced by ensuring that all medicines are clearly labelled with instructions as to when and in what dosage they are to be taken. In those with failing memory self-administration should be discouraged as the elderly individual may forget that he has already taken his prescribed dose.

At all ages accidents may occur from electric shock due to faulty switches and wiring. Tinkering with electric installations is dangerous – if not fatal; and many fires are due to faulty wiring which has been allowed to age with the house – and the owner. In England in 1984, 27 people died by electric shock in home accidents. In addition, 45 people died in fires involving electrical equipment. Wounds, too, are common, whether caused by knives, tin-openers or razors. These are seldom serious, but severe injuries may be caused by mechanical or powered equipment such as washing machines and mixers in the kitchen or rotary lawnmowers and hedgecutters in the garden.

All accidents are preventable, it has been said. This may be true in theory, but not in practice. In practice, however, their number could be radically reduced if first aid was a compulsory item in the routine school curriculum. Pending such a move, everyone should look upon an approved course of first aid as essential. Full details of such courses can be obtained from the British Red Cross Society, the St. John Ambulance Association, or the St. Andrew's Ambulance Association. (See **FIRST AID**.)

ACCOMMODATION: The process by which the refractive power of the lens is increased by constriction of the ciliary muscle, producing an increased thickness and curvature of the lens. Rays of light from an object further than 6 metres away are parallel on reaching the eye. These rays are brought to a focus on the retina mainly by the cornea. If the eye is now directed at an object closer than 6 metres away, the rays of light from this near object will be diverging by the time they reach the eye. In order to focus these diverging beams of light, the refracting power of the lens must increase. In other words the lens must accommodate. This involves the circular part of the ciliary muscle contracting, reducing tension in the zonular fibres. The tension on the lens is thus reduced and, because it is normally elastic, the lens assumes a more

rounded shape with more curved surfaces. In so doing, its focusing power (refractive power) is increased and light is focused on the retina once more. The stimulus for accommodation is a clear retinal image. The state of accommodation of the lens is constantly being adjusted to keep the retinal image clear.

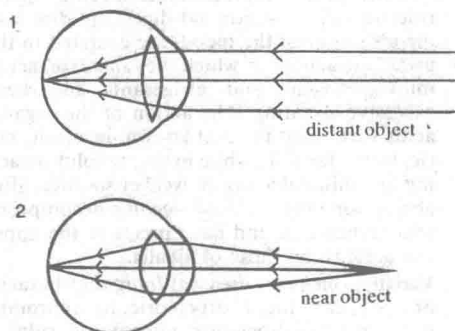


Diagram of eye in relaxed state (1) viewing a distant object and in an accommodated state: (2) with increased convexity of the lens for viewing a near object.

With age the lens loses its elasticity and thus becomes less spherical when tension in the zonule relaxes. This results in an increased long sightedness with age (*presbyopia*) and is manifested by the need for reading glasses in many people by middle age. (See AGE, NATURAL CHANGES IN).

ACCOUCHEUR is a physician who specializes in midwifery.

ACEBUTOLOL (SECTRAL) (see ADRENERGIC RECEPTORS).

ACETABULUM is the cup-shaped socket on the pelvis in which rests the head of the femur or thigh-bone, the two forming the hip joint. (See HIP JOINT.)

ACETAZOLAMIDE is a drug which acts by inhibiting the enzyme carbonic anhydrase. This enzyme is of great importance in the production of acid and alkaline secretions in the body. Acetazolamide has proved of value in the treatment of glaucoma. There is some evidence that it is of value in the prevention of mountain sickness (qv).

ACETIC ACID, also called pyroligneous acid, is prepared by the distillation of wood and subsequent separation from tar. It is also synthesized from acetylene. In the pure form it is solid, being then known as glacial acetic acid. It is the

active principle of vinegar, which is prepared from wine by the action of a particular ferment discovered by Pasteur. This grows on the surface of the vine, taking from the air oxygen which it gives up to the alcohol of the wine, so producing acetic acid. Weak acetic acid has all the actions of vinegar, and is less expensive. Strong acetic acid is a caustic and irritant poison.

Uses: In strong solution acetic acid is used to destroy warts or raise blisters. In cases of excessive sweating the weak acid is of value, because, sponged over the skin, it checks perspiration and produces a sense of coolness.

ACETOHEXAMIDE (DIMELOR) is one of the oral hypoglycaemic drugs being used in the treatment of diabetes mellitus. It acts by increasing the output of insulin (see SULPHONYLUREAS).

ACETONE is a chemical substance found in the urine in conditions of starvation, in diabetes mellitus, in prolonged vomiting, and in acute fevers – especially in children. With it occur in the urine beta-hydroxybutyric and acetoacetic acids, particularly in severe cases of diabetes. A large quantity of these acids and of acetone in the urine in diabetes indicates approaching coma. (See also ACIDOSIS.)

ACETYLCHOLINE is one of the substances which mediates the transmission of nerve impulses from one nerve to another, or from a nerve to the organ it acts on such as muscles. Its predominant role is in the parasympathetic nervous system (qv), but it also plays an important part in the transmission of nerve impulses in the brain. Acetylcholine is rapidly destroyed by cholinesterase, an enzyme present in the blood.

ACETYLCYSTEINE is a drug that is used in the treatment of fibrocystic disease of the pancreas (qv) and paracetamol poisoning (qv).

ACETYLSALICYLIC ACID (see ASPIRIN).

ACHALASIA is another term for spasm, but indicates not so much an active spasm of muscle as a failure to relax.

ACHALASIA OF THE CARDIA is a condition in which there is a failure to relax of the muscle fibres round the opening of the gullet, or oesophagus, into the stomach. (See OESOPHAGUS, DISEASES OF.)

ACHEINIA: Absence of the hand.

ACHLORHYDRIA means an absence of hydrochloric acid from the stomach juice; it occurs in about 4 per cent of healthy people and in several conditions, including pernicious anaemia, carcinoma of the stomach and gastritis.

ACHONDROPLASIA is a form of dwarfing in which the arms and legs are abnormally short. It is a hereditary condition, and the commonest form of dwarfism. It affects both sexes and, whilst many are stillborn or die soon after birth, those who survive have a normal expectation of life and good health.

ACHYLIA GASTRICA means the complete absence of ferments and of hydrochloric acid from the gastric juice; in this condition the food is passed from the stomach in a state of incomplete digestion.

ACIDITY is a vague term, more used in popular language than in scientific medicine, and meaning that the reaction of the blood, or of one or more of the secretions, is less alkaline or more strongly acid than normal, while a considerable number of symptoms is rightly or wrongly attributed to the condition.

The blood in health is alkaline, and an elaborate chemical mechanism keeps the degree of alkalinity remarkably constant. This mechanism hinges largely round the relative amounts in the blood of carbonic acid (H_2CO_3) and sodium bicarbonate ($NaHCO_3$): $H_2CO_3/NaHCO_3$. By this and other mechanisms the acids formed in metabolism are neutralized and got rid of through the kidneys and the lungs. These acids are the fixed acids, such as lactic, sulphuric, phosphoric, and carbonic acid which are produced in large amounts daily as a result of tissue activity. The blood in disease never becomes actually acid, except in the terminal stages of life. But the blood may become *less alkaline*: the patient in this state is said to have acidemia.

ACIDOSIS is a condition in which there is either (i) a production in the body of two abnormal acids - beta-hydroxybutyric and acetoacetic acids, or (ii) a diminution in the alkali reserve of the blood.

Causes: The condition is usually due to faulty metabolism of fat which results in the production of beta-hydroxybutyric and acetoacetic acids. It occurs in diabetes mellitus when this is either untreated or inadequately treated, starvation, persistent vomiting, and delayed anaesthetic vomiting. It also occurs in the terminal stages of Bright's disease when it is due to failure of the kidneys. A milder form of it may occur in severe fevers, particularly in children. (See also ACETONE.)

Symptoms: General lassitude, vomiting, thirst, restlessness, and the presence of acetone in the urine form the earliest manifestations of the condition. In diabetes a state of coma may ensue and the disease end fatally.

Treatment: The underlying condition must always be treated: eg. if the acidosis is due to diabetes mellitus insulin must be given. For the acidosis, alkalis should be given; eg. bicarbonate of soda, either by mouth, or by injection if

there is persistent vomiting or if the patient is unconscious. Glucose should also be given, and adequate fluids.

ACIDS are substances which combine with alkalis to form salts. Most are oxygen compounds, have a sour taste, and turn blue litmus red. They are divided into (a) mineral or inorganic, and (b) vegetable or organic. In strong solution the mineral acids act upon stomach and bowels as irritant poisons, but small quantities in weak solution aid digestion, diminish the alkalinity of the blood, are excreted in the urine, the acidity of which they increase, act as mild astringents and refrigerants, and check excessive sweating. The action of the organic acids varies, but the best known, ie. acetic, citric, lactic, tartaric, while in strong solution acting like mineral acids, in weaker solution after absorption into the blood become decomposed into carbonates, and have precisely the opposite actions: ie. those of alkalis.

Varieties commonly used: (a) *Inorganic:* boracic, or boric, chromic, hydrochloric, hydrobromic, nitric, nitro-hydrochloric, phosphoric, sulphuric, sulphurous.

(b) *Organic:* acetic, carbolic, carbonic, citric, gallic, hydrocyanic or prussic, lactic, salicylic, tannic or tannin, tartaric.

Uses: The strong mineral acids, especially chromic and nitric, with pure acetic and carbolic from among the organic acids, are used as caustics to remove outgrowths such as corns, warts, piles, and also to destroy diseased tissue in poisoned wounds and spreading sores. In using them, care must be taken not to let the action extend too far and destroy healthy tissue; they are usually applied on a glass rod, and an alkali, oil, or glycerin should be at hand to apply in case a drop falls on the healthy surface.

The astringent action is utilized in excessive sweating. (See also ACETIC ACID.) When the urine is very alkaline there is a tendency to the formation of phosphatic calculi, and catarrh of the bladder is often present; these are relieved by acids among various other substances.

For the use of special acids see under ACETIC ACID; CARBOLIC ACID; SALICYLIC ACID, etc.

ACIDS, POISONING BY: Although most acids have an extremely sour and burning taste, which warns a person drinking one of his error before very much is swallowed, several are so much used in commercial processes, and so easily obtained, that accidental and intentional poisoning by acids is not uncommon.

Symptoms: The symptoms produced are destruction of the skin and mucous membrane about the mouth, great pain in the mouth, throat, and stomach, and sometimes fainting or collapse. There is also later a risk of scarring and contraction of the throat. These are especially the symptoms of poisoning by strong inorganic acids, or by citric, or tartaric in large quantities, while several, such as prussic and

carbolic, have symptoms peculiar to themselves and not due to irritation. For the treatment of poisoning by these last two see PRUSSIC ACID POISONING and CARBOLIC ACID POISONING. **Treatment:** Give large quantities of water by mouth, and if possible add alkalis to it—such as cream of magnesia, bicarbonate of soda, or baking soda. If none of these is immediately available, plaster from the ceiling, or soapy water may be used. These neutralize the acid taken and form harmless salts, and also soothe the irritated mucous membrane. On no account must emetics be given. The patient must be treated for shock. Soothing or demulcent substances, such as milk in oil, or barley water, must also be given.

ACINUS is the name applied to each of the minute sacs of which secreting glands are composed, and which usually cluster round the branches of the gland-duct like grapes on their stem. (See GLANDS.)

ACNE, or **ACNE VULGARIS**, is a chronic skin disease which affects practically all adolescents. Fortunately, in the vast majority of these it is relatively insignificant and only in about 15 per cent of youngsters is it severe enough to require treatment. It usually begins around puberty, achieves its peak in the late teens, and disappears in the early twenties. By the age of 23, some 5 per cent of people have acne severe enough to need treatment, whilst by the age of 40 this figure is down to 1 per cent. There is a rare form of acne which occurs in baby boys, usually in a family with a strong history of acne. This usually disappears around the age of 5 years. Acne may be induced by certain drugs, including the corticosteroids, lithium, phenytoin, rifampicin, and the iodides and bromides. *Industrial acne* occurs in those exposed to vapours of chlorinated naphthalenes used in insulating cable and in those coming in contact with soluble cutting oils of high boiling points.

Causes: Three main factors are necessary for the development of acne: an increased production of sebum (qv); obstruction of the pilosebaceous, or sebaceous, ducts (see SKIN; and SEBACEOUS GLANDS); and the presence of micro-organisms. The activity of the sebaceous glands is controlled by testosterone, the male sex hormone, or androgen as it is known. This explains the onset of acne at puberty. In boys the androgen is produced predominantly in the testes as they develop to normal adult activity. In girls it comes predominantly from the adrenal glands. This increased production of sebum, the secretion of the sebaceous glands, is accompanied by blockage of the ducts through which it normally reaches the surface of the skin. It is this accumulation of sebum, which gradually becomes infected with skin micro-organisms, that leads to the formation of the small lumps, or comedones, the characteristic feature of acne. In girls acne tends to flare up in the week preceding menstruation. Sunlight,

especially natural sunlight, has a favourable influence on the condition. In some, particularly males who participate in active sports, it tends to be worse on the back after sweating. Mechanical factors may also play a part. Thus acne of the forehead, is seen in tennis players who use head-bands to control their hair, whilst acne on the shoulders and back is not uncommonly seen in young women, due to the pressure of their brassières. The influence of diet is non-proven, though fats and sweets, especially chocolate, have been traditionally associated with it. Stress plays a part, and this has been attributed to acne subjects, especially girls, tending to pick their spots during times of strain and thereby exacerbate the condition.

Symptoms: The eruption occurs predominantly on the face, back and chest, the face usually being the most affected. These are the sites of the eruption because they are the areas most richly supplied with sebaceous glands. The eruption consists of little black spots (blackheads or comedones) which indicate the mouths of blocked sebaceous (or pilosebaceous) ducts, hard pimples generally showing one of these blackheads on the top, and little pustules surrounded by a red area of inflammation which gradually grow, burst and then heal. In more severe cases there may be hard lumps, 12 mm (half an inch) across, which last for weeks or longer, suppurate, and leave a permanent hardness or scar. The amount of scarring of the skin left after the condition has cleared up depends upon the severity of the eruption, but in the majority of cases it clears completely.

Treatment: In milder cases all that is needed is daily washing of the affected parts. Some recommend detergents instead of soap and water, to degrease the skin. Where it is associated with the pressure of a head-band or a brassière, the wearing of these should be given up. The most effective agents for local application are benzoyl peroxide (qv) and retinoic acid (qv) applied once daily. In some cases combining the two, retinoic acid in the morning and benzoyl peroxide in the evening, is more effective. In more severe cases a course of either tetracycline or erythromycin is given. The usual dose is 250 mg twice daily, but this may be increased under medical supervision, for resistant cases and maintained for several months. A course of sunlight therapy is often helpful. Natural sunlight is more efficacious than artificial sunlight, but a three-month course of the latter in hospital during the winter often helps. Those with acne should be discouraged from squeezing out comedones with their fingers or so-called comedone expressors. In those who are left with severe scarring a course of dermabrasion (qv) may remove these blemishes.

ACNE ROSACEA (see ROSACEA).

ACONITE (also known as Wolfsbane, or Blue rocket or Monkshood) is an extremely poisonous plant found in different species all over the

world, and largely grown for its appearance in gardens. All parts of the plant are poisonous. The root has been mistaken for horse-radish, although the resemblance, to those who know horse-radish by sight, is not very great. The root of the horse-radish is long, whitish outside, when scraped remains white, and has the well-known pungent odour. Aconite root is short and stumpy, brown, and when scraped the white cut surface speedily turns pinkish; if it is chewed, the tongue in a few minutes tingles, then becomes numb and swollen, and a burning sensation is felt in the mouth. The action of aconitine, its active principle, is produced by smaller doses than in the case of any other drug; accordingly aconite is a favourite homoeopathic remedy.

Uses: Aconite is seldom used at the present day, although in the form of a liniment it is sometimes used externally to relieve pain, sprains and rheumatism. Tincture of aconite, which is still kept in some households, should never be used without the sanction of a doctor.

ACONITE POISONING: This may occur, as stated above, by mistaking the root for horse-radish, by children eating parts of the plant, or by the administration of too large a dose.

Symptoms: There are characteristic symptoms in the mouth (see ACONITE) after chewing parts of the plant. If a large amount of the poison has been taken into the stomach, vomiting and purging follow after some time. Numbness is felt all over the body. The pulse becomes weak, the breathing laboured, and the face livid. Convulsions may come on, but consciousness is retained.

Treatment: Give plenty of warm water to drink. The poison must be got rid of at once, preferably by washing out the stomach with a solution of tannic acid (6 grams in 4·5 litres [1 gallon]). Alternatively, an emetic may be given, one of the handiest being a tablespoonful of mustard in a cupful of cold water; or, best of all, one or two tablespoonfuls of sal volatile in water, this being also a stimulant. Emetics, however, should not be given if the victim is in a state of collapse. Artificial respiration may be necessary.

ACRIFLAVINE is an aniline derivative. It is an orange-red crystalline powder, readily soluble in water, which gives a rich yellow colour to substances brought into contact with it, and in a solution of 1 in 1000 of water, possesses strong antiseptic powers.

ACROCYANOSIS is a condition, occurring especially in young women, in which there is persistent blueness of hands, feet, nose and ears.

ACRODYNIA (see ERYTHROEDEMA).

ACROMEGALY is a disorder caused by the increased secretion of growth hormone by an adenoma of the anterior pituitary gland. It

results in excessive body growth of both the skeletal and the soft tissues. If it occurs in adolescence before the bony epiphyses have fused the result is gigantism. If it occurs in adult life the skeletal overgrowth is confined to the hands, feet, cranial sinuses and jaw. Most of the features are due to overgrowth of the cartilage of the nose and ear and the soft tissues which increase the thickness of the skin and lips. Viscera such as the thyroid and liver are also affected. The overgrowth of the soft tissues occurs so gradually that the patient and spouse are often unaware of the change. It is only relatives who have not seen the patient for many months or years who are aware of the striking change in physical appearance. The local effects of the tumour commonly cause headache and, less frequently, impairment of vision, particularly of the temporal field of vision, as a result of pressure on the nerves to the eye. The tumour may damage the other pituitary cells giving rise to gonadal, thyroid or adrenocortical insufficiency. The diagnosis is confirmed by measuring the level of growth hormone in the serum and by an X-ray of the skull which usually shows enlargement of the pituitary fossa. The treatment consists of removal or irradiation of the pituitary adenoma. This may have to be done via a craniotomy if the tumour is large but can often be done by an approach through the nose and sphenoid sinus. Deep X-ray therapy to the pituitary fossa is also effective treatment but it may take several years for irradiation to achieve its maximum effect. Drugs, such as bromocriptine, which are dopamine agonists, lower growth hormone levels in acromegaly and are particularly useful as an adjunct to radiotherapy.

ACROMION is the part of the scapula, or shoulder blade, forming the tip of the shoulder and giving its squareness to the latter. It projects forward from the scapula, and, with the clavicle or collar-bone in front, forms a protecting arch of bone over the shoulder joint.

ACROPARAESTHESIA is a disorder occurring predominantly in middle-aged women in which there is numbness and tingling of the fingers.

ACTH is the commonly used abbreviation for corticotrophin (qv).

ACTINOMYCIN D (Cosmegen, Lyovac) is an antibiotic isolated from *Streptomyces antibioticus* and *Streptomyces chrysomallus*; it has an inhibitory action on neoplastic cells (see CYTOTOXIC DRUGS).

ACTINOMYCOSIS is an acute or chronic suppurative disease affecting cattle in which it is known as Woody Tongue, and sometimes found in man.

Causes: The direct cause is the ray-fungus or actinomyces known as *Actinomyces israeli*,

which occurs as a commensal (qv) in the mouth. In certain circumstances still rather obscure, but one of which is undoubtedly trauma, such as a fractured jaw or extraction of a tooth, the *A. israeli* becomes active. It then causes hard swellings, abscesses and ulcers, in the pus of which the fungus is found in little yellow balls of a size which can just be made out by the naked eye. These little balls are found to consist of masses of thread-like material matted together, and of club-shaped bodies radiating from a common centre, hence the name of ray-fungus. It used to be thought that the human infection arose from the chewing of straw or grain, or was caught from cattle, but this is now known not to be the case. In over 50 per cent of cases the disease occurs in or about the mouth; in 20 per cent it occurs in the abdomen, and in 15 per cent in the thorax.

Symptoms: These are general bad health, the presence of hard fibrous masses about the mouth or tongue, or in other organs, and the development sooner or later in these masses of abscesses which after bursting form sinuses or ulcers that will not heal.

Treatment: The outlook has been changed completely since the introduction of the antibiotics. The best results are usually obtained with large doses of penicillin, but in some cases chlortetracycline is more effective. Surgical treatment may be required, as in the draining of abscesses.

ACTIVE PRINCIPLES are the portions of a drug which produce its effect, being administered for convenience, or of necessity, with the water, oils, vegetable fibre, etc., which make the bulk of the drug. They are of various chemical nature, but, in general, alkaloids. (See ALKALOIDS.)

ACUPUNCTURE is a traditional Chinese method of treatment by puncture of a part with needles. Its rationale is that disease is a manifestation of a disturbance of Yin and Yang energy in the body, and that acupuncture brings this energy back into balance by what is described as 'the judicious stimulation or depression of the flow of energy in the various meridians'. What is still not clear to the western mind is why needling, which is the essence of acupuncture, should have the effect it is claimed to have. One theory now being mooted is that the technique stimulates the production of pain-relieving endorphins (qv). Of its efficacy in skilled Chinese hands, however, there can be no question.

ACUTE GLOMERULONEPHRITIS (see GLOMERULONEPHRITIS).

ACYCLOVIR is an antiviral drug that is particularly useful in infections by herpes virus.

ADACTYLY: Absence of the digits.

ADDER-BITE (see BITES).

ADDICTS: The Misuse of Drug regulations 1973 require a medical practitioner to notify, in writing, the Chief Medical Officer of any person he considers or has reasonably grounds to suspect is addicted to any of the following substances:

Cocaine
Methadone
Dextromoramide
Morphine
Diamorphine
Opium
Hydrocodone
Pethidine
Hydromorphone
Phenazocine
Levorphanol
Piritramide.

The same regulations also provide that only medical practitioners who hold a special licence issued by the Home Secretary may prescribe diamorphine or cocaine for addicts. Other practitioners must refer any addict who requires these drugs to a treatment centre. All doctors may, however, still prescribe heroin and cocaine for patients, including addicts, for the relief of pain due to organic disease or injury. (See DRUG ADDICTION.)

ADDISONIAN ANAEMIA is another term for pernicious anaemia. (See ANAEMIA.)

ADDISON'S DISEASE: The cause of Addison's disease is a deficiency of the adrenocortical hormones cortisol, aldosterone and androgens due to destruction of the adrenal cortex. It occurs in about 1:25,000 of the population. Although the destruction of the adrenal cortex in Addison's original description was due to tuberculosis, a much more common cause today is auto-immune damage. Rare causes of Addison's disease include metastases from carcinoma, usually of the bronchus, granulomata and haemochromatosis.

Symptoms: The clinical symptoms depend on the severity of the underlying disease process. The patient usually complains of anorexia, nausea and loss of weight. The skin becomes pigmented due to the increased production of ACTH (qv). Faintness, especially on standing, is due to postural hypotension secondary to aldosterone deficiency. Women lose their axillary hair and both sexes are liable to develop mental symptoms such as depression.

Diagnosis depends on demonstrating impaired serum levels of cortisol and inability of these levels to rise after an injection of ACTH.

Treatment consists in replacement of the deficient hormones and this enable patients to lead a completely normal life and to enjoy a normal life expectancy.

ADENINE ARABINOSIDE is an anti-viral agent that is proving of value in the treatment of certain forms of herpes. (See HERPES SIMPLEX; and EYE DISEASES OF.)

ADENITIS means inflammation of a gland. (See LYMPHATICS.)

ADENO- is a prefix denoting relation to a gland or glands.