

muscular connective tissue. Echinococcus cysts are rare; those produced by the cysticercus are more frequently found. Cysts of small size are formed by trichina spiralis.

Tendons, Bursa.—Cysts found in these structures are usually lined with endothelium (hydrops, hygroma, ganglion, etc.). Degeneration cysts may arise from the liquefaction of hematoma contents. These are likewise usually lined with endothelium.

Nervous System.—Cysts lined with endothelium are found rarely in the dura (dural hygroma). Echinococcus and cysticercus cysts are both found in the meninges, the latter as solitary cysts of the size of a pea or in large lobulated cysts containing grape-like clusters of daughter cysts both inside and outside (C. racemosus.) These cysts are for the greater part sterile, but some may contain a single scolex. About them extensive proliferation may be excited. Echinococcus cysts are rare in the brain substance while cysticerci are of relatively frequent occurrence. The most common cysts of the brain substance are those produced by degeneration of infarctions or extravasations. As a rule these possess no independent wall; they are filled with a fluid similar to the cerebro-spinal. Degeneration cysts are also common in brain tumors, especially in the glioma. Cerebellar cysts may arise from diverticula of the fourth ventricle. Cysts are very frequently seen in the choroid plexus; they vary in size from a pea to a cherry. The cyst wall consists of delicate connective tissue containing fine vessels, is covered outside with polygonal epithelium, and is lined with endothelium. Delicate fibres of connective tissue containing vessels not infrequently are stretched across the cyst cavity. Similar cysts are also found in the pineal gland and hypophysis, those of the latter being sometimes lined with ciliated columnar cells. Their significance is unknown. Cysts of the brain and its membranes may also arise from errors of development (encephalocele, meningoencephalocele, etc.). Similar cysts are found also in the spinal cord (spina bifida, etc.). Cystic degeneration of Pacinian corpuscles has been observed by the writer.

Special-Sense Organs.—With the exception of insignificant retention cysts, cysts are not found in the ear. Cysticercus cysts may occur in the eye. Small cysts lined with stratified epithelium are found in the iris after injuries to the cornea and have been explained as being due to implantations of corneal epithelium. Small dermoid cysts have been observed in the cornea. The writer has observed retention cysts in an adenoma of the lachrymal gland.

Skin.—The most common cysts of the skin are the retention cysts of the hair follicles and sebaceous glands (atheroma, sebaceous cyst, etc.). They occur most frequently in the scalp, skin of the neck, and forehead. Dermoids are found in the subcutaneous tissue, as are also echinococcus and cysticercus cysts. Small miliary cysts of the sweat ducts occur under certain conditions, and in many of the diseases peculiar to the skin cyst-like spaces of varying nature may arise. Cystic dilatations of remains of the branchial clefts may be found beneath the skin in the neck. In rare cases cysts arising from the omphalo-mesenteric duct may be formed in the abdominal wall.

Alimentary Tract.—Retention cysts of the mucous glands may occur in any part of the mucosa of this tract from the lips to the anus. Small ones may be formed in acute catarrhal processes, larger ones in chronic catarrhs, dysentery, etc. Small cysts embedded in the muscle of the tongue are occasionally found. The ducts of the salivary glands may become obstructed and thus give rise to cystic dilatation; the tumor usually presenting itself in the floor of the mouth, beneath the tongue (ranula). Dermoids are also found in the tongue and mouth. Cysts arising from the tooth follicles may reach the size of a hen's egg (alveolar cysts). Cystic dilatations of the vermiform appendix may occur. Cysts connected with the intestine may arise from remains of the omphalo-mesenteric duct.

Respiratory Tract.—Retention cysts of the mucous

glands are found on the epiglottis, and in the mucosa of the larynx and trachea, more rarely in the bronchi. Rarely air cysts may be formed in these glands as the result of air being forced into them under high pressure. These may press outward between the trachea and the oesophagus. Dermoids have been observed in the lungs, but it is probable that these arose in the mediastinum. Echinococcus cysts of the lungs are very rare. Air cysts arise from the formation of emphysematous diverticula and their subsequent shutting off.

Thyroid.—Cystic degeneration of the thyroid through increased formation of colloid is of very frequent occurrence (struma cystica). These cysts contain colloid of varying color and consistence. Hyaline change and calcification are of frequent occurrence in the walls of these cysts, and the formation of true bone has also been observed in them (struma cystica ossea). Similar cysts in the thyroid region arise in accessory thyroids. The writer has observed in a case of acromegaly a cystic change in the parathyroids. The cysts varied in size from a pinhead to a pea, and contained an albuminous fluid which bore no resemblance to colloid.

Heart.—Both cysticercus and echinococcus cysts have been observed in the pericardium. Degeneration cysts in new growths are also found here. In adhesive pericarditis cyst-like cavities may be formed between the adhesions, and these may become lined with hypertrophic endothelium presenting a gland-like appearance. In the heart muscle itself both the echinococcus and the cysticercus have been found.

Spleen.—Large degeneration cysts may follow anæmic infarction. Echinococcus cysts have also been observed in this organ, more rarely the cysticercus. Small cysts containing serous fluid are found rarely near the capsule. They are lined with endothelium and are supposed to be due to peritoneal inclusions.

Liver.—Cyst-like dilatation of the gall bladder is not uncommon from obstruction of the duct by gall stones. Retention cysts of the smaller bile ducts in the liver substance are not rare. These usually possess a thin wall and contain a clear or bile-stained serous fluid; in other cases the walls are thick and the contents made up of thick bile, fat, and cholesterol. As a rule the cysts are lined with a low columnar or flattened epithelium derived from that of the bile ducts. All gradations of size between these small cysts and those attaining the size of a fetal head may be found. In some cases the number is so great that but little of the liver parenchyma is left (cystic degeneration of liver). Associated with this a similar condition may be found in the kidneys. Such cases are very frequently of congenital origin, and are most probably to be explained by some disturbance of development during fetal life. Solitary cysts containing clear fluid and lined with ciliated cells occur rarely in the liver parenchyma. Their significance is unknown. The most important cysts of the liver are those caused by the echinococcus; they occur more frequently in this organ than in any other part of the body. Degeneration cysts occur in tumors of the liver, especially in secondary sarcomata.

Pancreas.—Cysts of the organ may arise from obstruction of the pancreatic duct (ranula pancreatica). Degeneration cysts following necrosis, gangrene, hemorrhage, etc., are not uncommon. In other cases pancreatic cysts may arise from disturbances of development. They may reach a very large size and as a rule show a tendency to proliferation. From such cysts multilocular cystomata may develop.

Adrenals.—In the hyperplasias of these organs—known as adrenal struma—degeneration cysts occur after the growth has reached a certain degree of development. Necrosis of the central portion of the growth takes place so that the only living tumor tissue is found as a narrow zone just beneath the capsule. Softening develops in the necrosed portion and in time a cyst of large size may result. The contents are usually reddish or brown in color and of a pulsatous consistence. Rupture of the cyst may take place. Such cysts may form in the ac-

cessory adrenal tissue found in and about the kidneys, in the liver, etc., and in the adrenals of Marchand found in the broad ligament and near the testis. Adrenal tissue has been found in the walls of cysts of the broad ligament.

Kidneys.—After the ovaries the kidneys are the organs in which cysts are found more frequently than in any other part of the body. They may be solitary or numerous, large or small; they lie usually just beneath the fibrous capsule, having a thin wall and containing a clear yellowish fluid (so-called urine cysts). They are found also throughout the kidney substance, and may show all gradations of size from a pinhead to a hen's egg. They are lined with flattened epithelium which in the older cysts may have undergone degeneration. In these the contents may resemble colloid, and are not infrequently mixed with blood pigment. These cysts are retention cysts of the glomeruli and tubules, and are most commonly found in chronic nephritis, about infarct scars, and in all conditions of the kidney in which the connective tissue is increased. A few of these simple retention cysts are found in the kidneys of almost every individual after the age of forty. Congenital cysts of the kidney are found in the new-born in whom they sometimes reach a very large size and interfere with delivery. Extensive cystic degeneration of the kidneys, usually in association with a similar process in the liver, occurs in adults and is probably the result of some congenital anomaly. The organs may appear as if honeycombed, very little of the secreting structure being left. Cystic degeneration of sarcomatous tumors of the kidneys may occur and may be mistaken clinically for ovarian cysts. Proliferation cysts and dermoids have been described. Both cysticercus and echinococcus cysts occur rarely, the latter sometimes reaching a very great size.

Peritoneum.—Small cysts with serous contents are frequently found in the peritoneum, especially in the neighborhood of the female genital organs. They are found also in inflammatory adhesions, but may develop without preceding inflammation. In certain cases the entire peritoneum may be covered with small cysts varying in size from a pea to a walnut, many of them being attached to slender pedicles. They possess a delicate wall, and their contents may be either serous or chylous. They are partly lymph cysts arising from dilated lymph vessels, and partly of the nature of cystic lymphangioma. Serous cysts and gas cysts similar to those of the vagina have been observed in the serosa of the intestines and in peritoneal adhesions. The cysticercus forms harmless cysts in the peritoneal cavity, but those of the echinococcus may reach a very large size.

Female Genital Tract.—Cystic dilatations of constricted portions of the canal of Nuck sometimes occur. These may present themselves in the labia majora as large cysts lined with endothelium derived from the peritoneum. Atheromata and lymphangiectatic cysts are very common in the vulva. Retention cysts are not infrequently seen in the glands of Bartholin and may reach the size of a goose egg. Smaller cysts with serous or mucous contents are sometimes found in the hymen and around the entrance to the vagina. The gas cysts of the vagina have been described above. Retention cysts are extremely common in the mucous glands of the cervix (ovula Nabothi), especially in cases of ectropion and erosion following laceration of the cervix. They are almost constantly present in women past the menopause. These cysts show an especial tendency toward proliferation and from them cystadenomata not infrequently arise. Retention cysts of the glands of the endometrium are very common, especially in chronic endometritis in which disease the cysts may be so large and numerous as to warrant the name of cystic endometritis. A tendency to proliferation is observed here also. Degeneration cysts occur with great frequency in the uterine myofibromata and sarcomata. Cystic dilatation of the tubes may occur as a result of obstruction or constriction (hydrops tubæ cysticus). By confluent growth with ovarian cysts tubo-ovarian cysts may be formed. The small hydatid cysts occurring almost constantly near the fimbriæ are without significance except

when they reach a large size or show a tendency to proliferation. On the surface of the tubes and broad ligament there are occasionally seen in women past the menopause large numbers of small colloid cysts which have been thought to be degenerating ova. The cysts of the ovary and parovarium are of endless variety: degeneration cysts of Graafian follicle (hydrops folliculi Graafianii) and corpus luteum, follicular cysts, proliferation cysts, dermoids, cystic teratomata, etc. The so-called "klein-cystische" degeneration of the ovary is probably to be looked upon as an early ripening of a large number of follicles, a form of follicular hypertrophy. In some cases the dilatation of the follicles is the result of inflammatory processes. Cysts in the broad ligament may arise from the remains of Müller's ducts or from the adrenal tissue (Marchand's adrenals) which may be found there. The cysts of Kobelt are dilatations of portions of the parovarium. Echinococcus cysts arising from the ovary and uterus have been observed.

Male Genital Tract.—Cysts are very common in the head of the epididymis or its neighborhood. They may have a milky content (galactocoele) or may contain spermatozoa (spermatocele). The wall of such cysts may be lined with ciliated, simple columnar or flattened epithelium. They occur almost constantly in old age without significance, but in youth they are usually the result of inflammation and may be numerous and reach a large size. Occasionally they arise without preceding inflammation. They arise from the vasa aberrantia. The so-called hydatids of Morgagni are small and practically, without significance. Cystic dilatation of the tubules of the body of the testis may be caused by new growths. Degeneration cysts are also found in primary tumors of the testis. Dermoid cysts and cystic teratomata are relatively common while the parasite cysts are but rarely found. Cystic dilatation of the spermatic cord and seminal vesicles is not uncommon. Retention cysts are found in the prostate and urethral glands. Cysts may also arise in the neighborhood of the prostate from the remains of Müller's ducts. Small cysts are occasionally seen in the prepuce and scrotum.

Mammary Gland.—Retention cysts occur in this organ very frequently. According to the character of their contents they are called "milk cysts," "butter cysts," "soap cysts," etc. Proliferation cysts are also very common and from them the various forms of cystofibromata arise. Degeneration cysts occur in case of malignant tumor. Cystic degeneration of the gland within certain limits occurs as a senile change.

Cysts may be found at any age but are most common in late adult life and old age. Within certain limits cyst formation in the kidneys, ovaries, testicles, uterus, etc., may be regarded as a part of the physiological atrophy due to senility. The cysts found in early life are most frequently those due to congenital errors of development. Such cysts in connection with the genital tract may at puberty show marked tendency to proliferation and for this reason first manifest themselves at this time. The menopause is also a period of active cyst formation in the female genital tract. As a rule the growth of cysts is slow, but in some cases the rapid and excessive formation of secretions or exudations within the cyst may lead within a short time to the formation of a cyst of enormous proportions. The degenerative changes so frequently occurring in the walls of cysts very soon lead to marked changes both in and around the cyst. Through the proliferation of the wall following inflammation or through solidification and organization of the cyst contents many cysts become obliterated. This fact is sometimes taken advantage of by the surgeon, who, by the injection of some irritating fluid into the cyst cavity, produces an inflammation within the cyst wall in the hope that the resulting proliferation may obliterate the cyst.

The true cysts are benign growths in that they do not produce metastases. The proliferation cysts alone are allied to the cystic neoplasms, and since the latter so frequently arise from them they may be regarded as intermediate forms between the cysts and cystomata. Cysts

become malignant by virtue of size and position, and the secondary changes which they undergo. Cystic degeneration of the placenta may lead to abortion. Cysts of the meninges and brain may produce very serious disturbances on the part of the nervous system. Large atheromata of the scalp may cause a pressure atrophy of the underlying portions of the cranium. Cysts of the neck and respiratory tract may interfere seriously with respiration and deglutition. Cysts of the internal organs when of very large size may produce fatal results through pressure or rupture. Echinococcus cysts in the heart may give rise to extensive metastases or may cause sudden death through rupture of the heart wall. Rupture of cysts into any of the body cavities may give rise to widespread inflammations of serous surfaces. This occurs most frequently in the case of large ovarian cysts. Occasionally the mucous contents of these cysts may be spread in a thick layer over the entire peritoneum, becoming partly organized (pseudo-myxoma of peritoneum). Cysts of the liver, pancreas, and kidneys may through pressure cause complete atrophy of the parenchyma of the organ. Spontaneous fracture may follow the formation of bone cysts.

Only very general points can be given as to the diagnosis of cysts. As a rule they form circumscribed tumors, more or less movable, elastic, and fluctuating. Aspiration of the cyst contents and their chemical and microscopical examination often yield important aid in the differential diagnosis. This is especially true in the case of parasite and degeneration cysts. The location, manner of origin, character of cyst wall and lining, rate of growth, etc., are all points of diagnostic importance. The symptomatology of cysts in general is too large and complex to admit of definite generalizations, and only very general statements can be made in regard to their treatment. This is almost wholly along surgical lines, and consists either in the removal of the cyst as a whole or in its obliteration through aspiration and the excitation of reparative processes.

Aldred Scott Warthin.

DACTYLITIS. See *Hands and Fingers, etc.*

DALTONISM. See *Color Sensations.*

DAMIANA.—The leaves of several Mexican and Central American species of Turnera, especially *T. diffusa* Willd., not all of them as yet determined, perhaps not even described. The drug contains a considerable percentage of volatile oil and resin, with some tannin and an amaroid. It is therefore an aromatic bitter. That it may have some special properties in this class appears not unlikely. The unprofessional and disgusting methods of its exploitation and use have naturally repelled the interest of investigators, so that it has not fared well at their hands. Its popular use as an aphrodisiac does not appear to be justified. The dose is 1 to 4 gm. (gr. xv.-lx.).

Henry H. Rusby.

DAMMAR RESIN.—(*Resina Dammara*, Ph. G.) Resins obtained from *Agathis Dammara* Rich. (*Dammara alba* Rumph) and *A. australis* (Lamb.) Salisb. (*D. orientalis* Lambert), Order, *Coniferæ*; and also from *Hopea micrantha* and *H. splendida*; Order, *Dipterocarpaceæ*.

The *Agathis* trees are large, straight-trunked, handsome firs, from whose branches an abundance of turpentine exudes, both spontaneously and upon incision. It dries rapidly, and hardens to dense, brittle, irregular tears or masses of resin, often of large size, the surface commonly warty or mammillose. The *Hopeas* are also tall large trees, and belong in an order which yields a number of other volatile and resinous products (Borneo camphor, Gurjun balsam, Indian copal, and so forth). The above trees are all natives of the East—the Moluccas, Java, Borneo, India, etc.

Dammar comes in fine, hard, transparent yellow, or nearly white, odorless tears, of irregular shape and size, but often large. It is brittle, breaking with a brilliant, conchoidal fracture, but softens slightly in the hand, and

melts at about 120° C. Soluble in chloroform, ether, carbon disulphide, fats, and oils, but not entirely so in cold alcohol or in benzin. It is a compound of several resinous constituents—*damarylic acid* and its *hydrate*, *damaryl* and *damaryl subhydrate* (Dulk: copied from Huseman).

USES.—This resin is an ingredient of the German adhesive plaster—*Emplastrum adhesivum* (Ph. G.), of which it comprises fifty of the six hundred and fifty parts—litharge plaster, yellow wax, and resin being the others. It is harder and perhaps less irritating than common resin, but not otherwise different. It is invaluable as a basis of varnishes, etc., for which it is principally used.

Several other species of both genera yield similar resins—*D. australis* is the source of the Kauri gum of New Zealand, also extensively used in varnishes.

W. P. Bolles.

DANDELION.—*Taraxacum*. "The root of *Taraxacum officinale* Weber (fam. *Compositæ*) gathered in autumn" (U. S. P.). This well-known plant grows in the greatest profusion throughout most of the north temperate zone and is being increasingly cultivated as a food plant. Its reputation as a drug is of the most ancient character, but its professional use has steadily declined in the face of more accurate knowledge of drug action. The root is vertical, but rather crooked, mostly simple or with one or two branches parallel with and close to the parent, rarely reaching a foot in length and having the thickness of the finger. The drug more commonly has the dimensions of a lead pencil; it is brown, deeply wrinkled, light, soft and brittle. On fracture, the wood zone is seen to be small and bright-yellow, the bark whitish if carefully dried, otherwise dark. It contains numerous circles of laticiferous ducts, which, on paring the ends, glisten slightly, if the drug is of fine quality. The taste is distinctly bitter, and slightly sweetish, and a gummy consistency is appreciated upon chewing. The activity resides in the milky juice which fills these ducts. The official fluid extract is made from the dried root, but the Pharmacopœia directs that the fresh root shall be used in making the extract.

COMPOSITION.—The small amount of sugar, gum, resin, and wax-like substances, and the large amount of inulin are scarcely medicinal. The bitter principle is taraxacin. An alkaloid exists in minute amount.

Dandelion exerts no marked physiological action. It is somewhat laxative, hence depurative, and, because of a slightly increased elimination of bile, has been supposed to be a hepatic tonic. It does seem to possess slight alterative and tonic powers.

The dose of the fluid extract is 4 to 8 c.c. (fl. ʒ i.-ij.), of the extract 0.5 to 2 gm. (gr. viij.-xxx.).

Henry H. Rusby.

DARIER'S DISEASE. See *Keratosis.*

DATES.—The fruit of the date palm, *Phoenix dactylifera* L. (fam. *Palmaceæ*). It is a fine large tree, indigenous to Africa and parts of Asia, but long cultivated in many varieties in the tropical parts of the old world. Like the coconut palm, it supplies a multitude of needs to millions of people in the warmer parts of the world: the young bud is eaten as a vegetable, the older leaves supply fibres for textile purposes, a sort of wine is made from its juice, the seeds are ground up for cattle or used as "coffee," and the fruits form an important article of food. Dried, or preserved in sugar, they are exported to all parts of the world as a sweetmeat and dessert. The larger variety is the Alexandrian, the smaller the Barbary date.

They contain *glucose*, fifty or sixty per cent.; gum, pectin, etc., ten per cent.; *coumarin*, a trace. Dates are simply an article of food and luxury, with only slight laxative properties.

W. P. Bolles.

DATURA. See *Stramonium.*

DAVOS.—(Davos-Platz, Davos-Dörfli, and Wiesen.) Davos, the best-known and most frequented "high-altitude" winter station in Europe, is composed of two villages a short distance from each other—Davos-Platz and

dry air of great diathermancy, much sunshine and but little wind, resembling closely that of Colorado, with the important difference, however, that the daily average of sunshine in the latter resort is much greater than at Davos.



FIG. 1576.—Davos-Platz in the Winter Season

Davos-Dörfli. It is the former, Davos-Platz, which is always meant when Davos as a health resort is referred to.

Davos first became known as a health resort for consumptives through Dr. Spengler, who was a physician there, and who communicated the fact of its immunity from phthisis to the German climatologist Meyer-Ahrens. Through the publications of the latter, Dr. Unger, a consumptive, with a friend likewise afflicted, went to Davos and was cured; and through the favorable reports and experience of Drs. Spengler and Unger the advantages of this climate for pulmonary tuberculosis began to be appreciated in Europe.

It was a radical departure from the existing ideas of a suitable climate for this disease, and it seemed a strange, not to say dangerous experiment for a consumptive to pass the winter in the snows of the Alpine Mountains. As the favorable reports of those who made the venture, however, became known, the fame of the place spread, and from eight in 1865 the number of consumptives who visited it increased yearly, until in 1890 they amounted to 1,511, of whom 89 were Americans; and now it is the most popular high-altitude resort upon the Continent, the English coming next to the Germans in numbers. It is called a "winter resort," the climate at that season being considered the most favorable, although Dr. Turban, who conducts a large sanatorium there, told the writer that the seasons should make no difference and that a patient should remain continuously until the cure was effected. The climate is characterized by a cold, pure,

The snow covers the ground deeply during the winter (from three to five months), but it is a dry snow.

Davos is situated in the Canton des Grisons, Switzerland, in the upper Engadine, at an elevation of 5,115 feet above sea level. The valley of Davos is about fourteen miles long, and about half a mile wide, and runs from northeast to southwest. The mountains which shut in the valley rise from 2,000 to 3,000 feet above its bed. It is protected from the north and west winds; indeed, one of the most remarkable and characteristic features of the climate of this resort is its windlessness. It possesses all the attributes of an Alpine village—long winters; a mountain torrent, the Landwasser, traversing the valley; sparse vegetation; forests of fir and larch upon the mountain sides; high sun, and low, freezing, shade temperature. The soil is sandy and dry. The snow, which lies two or more feet deep during the winter, begins to melt about the middle of March, and patients leave about the first of April.

The average temperature for the year is 38° F., and for the seasons: Winter, 23° F.; spring, 35° F.; summer, 52° F.; autumn, 34° F.

The striking characteristic in the temperature, more or less common to all high-altitude resorts, is the great difference between that of the sun and that of the shade; in a moment one passes from winter to summer, or the reverse. Here is the comparison given by Richards in his article upon *Davos* in the previous edition of the HANDBOOK, quoted from Weber.

SUN AND SHADE TEMPERATURES AT DAVOS, 1876-77 (FAHRENHEIT SCALE).

	October.	November.	December.	January.	February.	March.	Average.
Mean maximum sun temperature	133.07°	106.12°	109.08°	108.30°	111.36°	122.32°	115.04°
Mean maximum shade temperature	60.40	36.63	39	36.07	34.55	36.46	40.51
Difference	72.67	69.49	70.08	72.23	76.81	85.86	74.53