and inexpensive. As far as possible the edges should be turned in to prevent ravellings being left in the wound. These mops and pads should be wrapped in gauze, one dozen in a package, and so sterilized. In this way they can readily be counted so that none shall remain in the wound. Large flat gauze pads with a string attached are now often used in abdominal work in place of the large flat sponges formerly so much in vogue.

The *instruments* should be made entirely of metal, of very simple design and easily cleansed. They should be kept perfectly clean by thorough scrubbing with brush, soap, and water before and after each operation. This should have the most careful attention lest shreds of tissue and clots of blood remain. Proper cleansing having been obtained, the instruments may be rendered sterile by boiling in one-per-cent. solution of carbonate of sodium for five minutes. The sodium salt seems to aid in the destruction of micro-organisms which may be present (Schimmelbusch). It also prevents rusting of the instruments which occurs in plain water. The ordinary fish kettle is very useful for boiling instruments, as the tray can be lifted and the instruments transferred to another tray or towel without being handled. Wiping them and placing in a towel exposes them to a chance of contamination and is not as a rule advisable. Cutting instruments unfortunately lose their edge when boiled, hence other means are necessary to render them germ free. Immersion for a short time in alcohol, then in pure carbolic acid for five or ten minutes, again in alcohol which dissolves the carbolic acid, and finally in freshly boiled water will be the best plan for sterilization. Germicidal drugs other than carbolic acid are seldom used for the preparation of instruments. Bichloride of mercury acts destructively upon metal. After sterilization the instruments should be kept in basins and covered with hot water or towels and should not be handled again before the operation. One assistant should have entire charge of the instruments, or, perhaps better, the table containing them is so placed that the operator can get them himself. If an instrument falls upon the floor, is handled by septic hands, or is soiled by infectious material during an operation, it should be discarded or resterilized. When not in use instruments should be kept in a clean, dust-proof case.

The Dressings.—Butter or cheese cloth is almost universally used at the present for a wound dressing and is known to the profession as gauze. Surgeons' absorbent cotton is also very largely used as a wound dressing. Other materials, such as oakum, jute, etc., are used less frequently. The materials most suitable for bandages are butter cloth, unbleached cotton, flannel, and crinoline. The dressing, gauze, cotton, and bandages, also aprons, towels, gauze sponges, blankets, and sheets, can all be rendered aseptic by exposure to steam in a sterilizing apparatus for one hour on three successive days. The sterilizer of Arnold, E. Boeckman, or a similar one may be used for this purpose. The chief object is to obtain a moving or live steam with sufficient pressure to be forced into all parts of the material undergoing sterilization. Heat applied before closing the sterilizer will tend to prevent condensation of the steam and saturation of the dressings. The same end can be reached by allowing the steam to pass through the materials after opening the sterilizer. When taken from the sterilizer they should be dry and subsequently handled as little as possible and with the greatest precaution to prevent contamination. If folded in gauze before sterilization they should be opened only when ready for use and in the mean while confined in closed retainers.

Sutures and Ligatures.—The suture and ligature materials now in use are catgut, silk, silkworm gut, kangaroo tendon, silver wire, and horsehair, each having its peculiar indications for use. Of these, catgut and kangaroo tendon are sterilized with most difficulty. The other materials are less readily affected by heat and are therefore the more easily rendered sterile. The former have, however, the advantage of being readily absorbed, and will be on this account less likely to act as a foreign body and prove subsequently a source of irritation. Silkworm gut is not absorbent, has no tendency to become softened by wound secretions, and is therefore not so likely to carry infection into the wound as catgut or silk. It is very useful when a firm, strong, and non-absorbable material is indicated. Silk sutures and ligatures should be rolled on glass spools and sterilized with the dressings by steam or by boiling in plain water just before use, or the method in use at the Johns Hopkins Hospital (Halsted) can be adopted. The silk is cut in lengths of from nine to twelve inches, and ten of these strands are wound on a glass reel. Several of these reels of desired sizes of silk are placed in a glass tube, which is loosely plugged with cotton. The tube is then placed in a steam sterilizer for an hour on the first day and on the two following days for half an hour each time. When removed from the sterilizer the cotton is pushed tightly into the tubes, and they are kept in aseptic glass jars until wanted. Frequent boiling of silk appears to lessen its strength to some extent. Boiling silk or silkworm gut in soda solution will soften it and cause deterioration. The sterilization of catgut is a more difficult task, and most methods have been far from satisfactory. The prepared gut offered for sale is as a rule most unsatisfactory; this is especially true of that kept in oil. The latter is, however, rarely sold at the present time. Catgut kept in alcohol in a sealed glass tube can be sterilized by boiling for two hours. Kelly for some years used catgut that had been soaked in ether and then boiled in absolute alcohol under pressure, but he abandoned the method after several cases of infection, which were thought to be due to imperfect sterilization of the gut, had occurred. He has recently used Kronig's cumol method modified by Clark and Miller. This he describes as follows: 1. Cut the catgut into desired lengths and wind twelve strands into a figure-of-eight form so that it may be slipped into a large test tube. 2. Bring the catgut gradually up to a temperature of 80° C. and hold it at this point one hour. 3. Place the catgut in cumol, which must not be above a temperature of 100° C.; raise it to 165° C. and hold it at this point for one hour. 4. Pour off the cumol and either allow the heat of the sand bath to dry the catgut or transfer it to a hot-air oven at a temperature of 100° C. for two hours. 5. Transfer the rings with sterile forceps to test tubes, previously sterilized as in the laboratory. Cumol is not explosive but very inflammable: care must therefore be used to keep it from the flame. Kangaroo tendon is not generally used, but is useful when early absorption is not desired. It can be prepared in a manner similar to that employed for the sterilization of catgut. The irregularity of the tendon makes it somewhat difficult to handle. Silkworm gut can be readily sterilized by steam or by boiling and can then be kept immersed in alcohol. It can, however, be boiled with the instruments at the time of operation and thus rendered perfectly sterile. By cutting off the two irregular ends of the required number of strands and making the first turn of a reef knot, they can easily be handled and one strand removed at a time by holding at the knot and pulling it from the convexity of the loop. Another good plan is to place the strands in test tubes in which they can be sterilized and kept aseptic until ready for use. Silver wire is easily sterilized by boiling with the instruments. It is a favorite suture with many operators, especially when a considerable thickness of tissue is to be approximated. Some abdominal operators use it in suturing the abdominal wall in tiers. It is, however, not so frequently used as some of the other materials and often causes irritation when embedded in the tissues. Horsehair makes a very valuable material for suturing the skin where tension will be slight. Black hairs are best as they are larger and stronger. The hairs are readily prepared as follows: Take a small bunch of hair from the horse's tail and brush it in a direction opposite to its growth to remove the short hairs. Then wash it thoroughly, first in soap and water to remove grit and dirt, and then in ether to remove fats. Finally, boil and

keep in alcohol until needed for use. Or the small bundles can be put into a test tube and sterilized by steam as is done in the case of silkworm gut. The hair suture is best inserted as a buttonhole suture or as the chain stitch of Billroth. In order to do this, tie the first stitch as in simple continuous sutures, then pass the needle through both lips of the wound and hook the emerging end of the suture under the other to lock the stitch.

Fluid for Irrigation.—Water as generally seen is not germ free. The best and simplest method to render it sterile is by boiling with or without previous filtration. The latter is to be preferred, because there will be less sediment and the vessels will the more readily be kept clean. These vessels should be provided with covers which are put in place after the sterilization. It is well to supplement the cover by a few folds of sterile gauze or a towel. Some of the water should be sterilized long enough before the operation to allow time for cooling. The dipper for conveying the water from one vessel to another can be sterilized with the water. In fresh and clean wounds germicidal solutions are to be used only in preparing the field and the hands prior to operation, and only plain sterile water or a normal salt solution, 6 to 1,000, used during the operation. In accidental wounds and septic conditions an effort is to be made to destroy the organisms by the use of chemicals such as 1 to 1,000 bichloride of mercury solution, or from one to five per-cent. solution of carbolic acid, or one-per-cent. solution of acetate of aluminum. In fresh aseptic wounds many surgeons use the dry method of operating and obtain excellent results. No fluids of any kind come into contact with the wound, and dry gauze sponges remove the blood. In this way one of the things necessary for bacterial growth, moisture, is markedly lessened.

The Drainage.—Material for drainage is used to remove from wound spaces the serum which would form a pabulum for bacterial growth, and in accidental or infected wounds to remove pus and incidental colonies of bacteria, but in many cases some additional drainage material is necessary. This object may be accomplished by a simple counter opening at a dependent part. Strands of sterilized silk, horsehair, catgut, and silkworm gut are frequently used for this purpose. The other materials which are employed for drainage are gauze and tubes made of decalcified bone (Neuber), of glass, or of pure rubber, fenestrated as desired. The latter is one of the best and most universally used. Glass tubes are used almost exclusively in abdominal and pelvic work, and are less useful in other parts of the body. Tubes of glass and rubber can be made perfectly sterile by boiling, and they produce as little irritation as any of the other forms of drain. Owing to the tendency the tissues have to become adherent to the meshes of the gauze, it has been proposed to surround the gauze drain by gutta-percha tissue. This tissue cannot be boiled as it is destroyed by heat, and dependence must be placed on alcohol, bichloride of mercury, or other chemical disinfectant which is washed away before the drain is inserted.

Drainage should be employed only when there is a distinct reason for so doing as where there is excessive wound secretion, where contamination of the wound has occurred, where dead spaces are unavoidable, and where the wound is connected with mucous surfaces. The danger of contamination of the wound through drainage must not be overlooked. When the object for which the drain has been inserted has been accomplished, or when its presence produces irritation, its use should be discontinued. The size of the drain must be suited to the amount of fluid to be removed. If rubber tubing is used, it should just emerge from the skin to prevent flexion and obstruction, which may occur if it projects too far out, and it must not be choked by the pressure of the nearest suture. A sterilized safety pin passed through the margin will prevent the tube slipping into the depths of the wound.

The Wound.—In making a wound the surgeon should endeavor to injure the tissues as little as possible, using sharp knives and making a clean-cut incision. The tissues should be torn asunder as little as possible so that the amount of dead tissue will be small, thus lessening the favorable soil for bacterial growth. For the same reason rough sponging and injurious chemicals are to be avoided. Hæmostasis must be complete, and suitable drainage arrangements should be made for the removal of the wound secretions in the larger wounds and in those in which infection is likely to take place. The dead spaces must be as nearly as possible effaced by position, suturing, and bandaging; in fact, everything should be excluded from the wound which will lessen the vitality of the part or form a nidus for the growth of bacteria. It is a well-known fact that too much tension upon a suture will favor the formation of a stitch abscess; therefore the stitches are to be drawn only tight enough to approximate the edges without tension. When the suturing is complete, the wound and adjoining field should be freed from blood by a piece of moist gauze and dried thoroughly. The dressing is then to be applied, the character of which will depend largely upon the situation and size of the wound. The small and superficial wounds can be sealed by the use of collodion or celluloid, and if a drain is needed its point of emergence can be left open. In the latter case it is wise to apply a sufficient quantity of gauze over the wound to take up the secretion, and then to cover this with cotton and a bandage. In the larger wounds plain sterilized gauze in voluminous folds should, after being shaken up, be applied and covered with cotton and a bandage. The part is then to be placed at rest, and if an extremity, in an elevated position. The application of chemical dusting powders to the wound will depend largely upon the experience of the operator. The substances most used for this purpose are iodoform and boric acid, neither of which is germicidal or sterile as usually seen. Iodoform can be made sterile by placing it in a gauze bag and immersing in a strong solution of mercuric chloride.

For some years the writer has adopted the practice of dressing aseptic wounds without any dusting powder, and has found that they remain dry and heal as kindly as with the use of such substances. When an inspection of the wound is demanded there is no crust covering the wound to prevent the discovery of a small focus of suppuration, and there is no obstruction to the free removal of wound products by the dressing. When it is found necessary to use adhesive plaster for coaptation or to prevent separation of wound surfaces, several folds of sterilized gauze should be placed between the wound and the adhesive, for this material cannot be rendered sterile.

Subsequent Dressings.—The same degree of care in the preparation of the hands should be observed for the dressing of wounds as at the time of the operation. Rubber gloves and finger cots will find a very useful field where many wounds are to be dressed in succession. If drainage has been used, the wound should be dressed at the end of twenty-four or forty-eight hours, and the gauze or tube removed. After this time there should be some distinct indication for such interference before the wound is again disturbed. Repair will not be hastened by needless inspection. Fever, pain, odor, and saturation of dressings will indicate the necessity for an examination. The sutures should be removed when they have fulfilled the indication of their insertion or when they are producing irritation and thus are failing in this purpose.

Accidental Wounds.—A large percentage of such wounds are infected before they reach the surgeon and therefore require especial efforts at sterilization. The wound and surrounding skin must be thoroughly cleansed with soap and water, and washed with an antiseptic solution, either of corrosive sublimate (1 to 2,000) or of carbolic acid (1 to 100). The solution is removed by flushing with sterile water. Complete approximation is not often advisable and drainage is the rule rather than the exception. A dusting powder, of which iodoform is the best, may then be applied, and over this the same dressing as in an aseptic wound. Van Arsdale has recommended the use of a five-per-cent. solution of balsam of Peru in castor oil as a wound dressing. This can be sterilized by heat and will

be found useful especially in accidental and suppurating wounds. It prevents the dressings from adhering to the wound and permits of their easy and almost painless removal. The appearance of infection in a wound demands the establishment of free drainage and the use of antiseptic irrigation. The application of a hot, moist antiseptic dressing will often prove beneficial.

Asepsis of Special Operations.—In abdominal operations, in which contamination of the cavity by pus, feces, bile, or urine may be feared, it is essential that the general peritoneum be protected by the interposition of gauze pads or sponges to take up such material. These sponges or pads are removed after the field has been cleansed and the danger of further contamination is passed. Following this, the general cavity is to be flushed thoroughly and a complete toilet made. Similar steps are necessary in opening a cerebral abscess which is likely to be followed by a general inflammation of the meninges. Some minor surgical procedures demand aseptic precautions, such as aspiration and injection of cavities, saline infusion — hypodermic injections — and the use of catheters and sounds for urethra, bladder, and ureters. Aspirators and syringes should be so constructed as to be easily sterilized. A hypodermic syringe is now on the market which is made entirely of metal and can be boiled. Overlach's syringe with rubber piston, glass barrel, and metal mountings can also be sterilized by boiling. The needles should be boiled in soda solution before they are used. The fluid to be injected into the tissues should be boiled, unless it is itself germicidal. Fountain syringes made of rubber or glass can be boiled and are frequently used for making saline injections into the blood and tissues. They must be freshly sterilized before they are used. It is essential that the skin should also be sterilized in such procedures. It is claimed by Cazeneuve and others that the urine from healthy kidneys in a healthy bladder is always sterile. Decomposition of the urine and inflammation of the bladder occur only as the result of the presence of micro-organisms, which as a rule enter from without. The entrance of septic germs does not always produce an inflammation of the bladder, as they are rapidly expelled with the urine. Any obstruction to outflow will favor their retention and growth, and the development of inflammation in the ureters and kidneys as well. Every effort must be made, therefore, to prevent infection of this tract. Catheters are made of soft rubber, metal, silk, or linen sealed by gum. The metal and soft rubber are best. They should be sterilized by boiling for five minutes, and then anointed with sterilized glycerin or oil before they are introduced. Sounds and other instruments should be treated in the same way. If such procedure would injure the instrument, dependence must be placed on a strong carbolic solution. Brisk friction for one minute with a wet towel followed by similar treatment with a dry cloth will make the solid instruments sterile (Schimmelbusch). A virulent urethritis contraindicates catherization, and before any instrument is passed, the urethra should be cleansed by the evacuation of the urine or by flushing the canal with water or normal salt solution. Constant watchfulness in all surgical procedures, both large and small, is absolutely essential for the prevention of septic contamination. This watchfulness can be cultivated to a very high degree so that it becomes more or less a matter of habit. When this occurs, however, there enters the danger of carelessness. Therefore it is well to remember that our technique is always open to improvement and that the danger lies in indifference and a lack of care.

J. Garland Sherrill.

ASEPTOL is the trade name of a solution of sozolic acid, of the strength of thirty-three per cent. Sozolic acid, $C_6H_4(HSO_2)OH$, is formed when carbolic acid is dissolved in concentrated sulphuric acid, in chemically equivalent parts. It is a syrupy, reddish-brown fluid, miscible in all proportions in water, alcohol, and glycerin. It is less poisonous than carbolic acid and has a more agreeable odor. Specific gravity, 1.168. It possesses antiseptic properties and is used externally for the same purpose as carbolic acid. It is devoid of caustic properties, is less irritating, and is not so powerful an antiseptic, being estimated to possess about one-third its germicidal power. A solution of ten per cent. may be generally employed as an antiseptic wash. In diphtheria it is recommended as a local application. It may be given internally, but the official salt, sulphocarbolate of sodium, is to be preferred.

Beaumont Small.

ASH BARK.—The bark of various species of *Fraxinus* L. (fam. *Oleaceæ*). The commonly used species are the *F. excelsior* L. of Europe and the *F. Americana* L., or White Ash, of America, the inner root bark of which has been employed. The fluorescent glucoside *fraxin*, very common in the genus, seems to be less important therapeutically than the volatile oil and amaroid, which are present with a considerable amount of resin. Its composition would indicate its utility as a stimulant to nutrition. Its empirical use in the treatment of dysmenorrhœa and metritis is, however, not explained. The dose is 1 to 4 gm. (gr. xv. to lx.), and it is advised to be given in the form of a wine.

H. H. Rusby.

ASH, PRICKLY.—Xanthoxylum. "The bark of *Xanthoxylum Americanum* Miller and of *Xanthoxylum Clava-Herculis* L. (fam. *Rutaceæ*)" (U. S. P.). Prickly ash derives its name from its armature of thorn-like prickles and its superficial resemblance, when in flower, to the true ash (*Fraxinus*), to which it is not related. The genus *Xanthoxylum* L., as recognized by Bentham and Hooker, contains nearly one hundred species, distributed widely in both temperate and tropical regions of both hemispheres. In most of these regions, one or more species are used as ours is, and many of them are employed also in fish poisoning. Of the two species named above, the former is the northern, the latter the Southern prickly ash. The latter is regarded by Dr. Engler as representing a distinct genus, *Fagara* L., and is called by him *F. Caroliniana* (Lam.) Engler. This view is apparently correct.

The fruits of both the northern and southern species have composition and properties generally similar to those of the bark, and are used similarly, but in rather smaller doses. The Cuban species, to which the name *X. Clava-Herculis* L. has also been applied, is a distinct species (*X. Caribæum* Lam.). Northern prickly ash is a large shrub, rarely attaining to the dimensions of a very small tree. Its spines are not borne upon corky protuberances. Southern prickly ash becomes a small tree, and its spines, at least upon the older portions, are elevated upon large conical corky excrescences. The bark of the former is in small quills or pieces of them, very thin (rarely exceeding one twentieth of an inch in thickness), brown or purple with light gray patches, very rarely entirely gray, and usually with minute black spots resembling fly specks. Its inner surface is smooth and whitish, becoming yellow, and with a greenish tinge. It has a sharp, brittle fracture, exhibiting an outer green and an inner yellowish-white layer. The southern bark is even thinner in quills of the same size, though the older pieces become twice as thick, and it is more uniformly gray. The spine characters assist in the differentiation. Both barks have a very bitter and pungent, afterward acrid taste.

Composition.—As to their general nature the constituents agree in the two barks, though the compounds are different. There are two resins, one very acrid. The oil is also very acrid. The bitter taste is due to a distinct substance, *xanthoxylin*. A small amount of tannin is also present.

Properties.—The action of prickly ash is that of an aromatic bitter, but it has other characteristic properties. Its locally stimulating powers are very marked. Externally it is an active counterirritant and relieves neuralgia and rheumatism. It excites profuse secretion in the mouth and stomach, and apparently in the intestine.

It stimulates the heart quite strongly, apparently reflexly. It promotes excretion as well as secretion and is an excellent diaphoretic, diuretic, and expectorant. This eliminative power makes it of service in the treatment of rheumatic and syphilitic conditions. It was one of the most extensively used of aboriginal drugs, and has always been a favorite in domestic practice, and it is unfortunate that it has been displaced professionally by less worthy articles. The official preparation is the fluid extract, the dose of which is 1. to 4.0 c.c. (fl ʒ ¼ to 1). The root of *X. Senegaleuse* DC. is similarly used under the name of *artar root*. It contains the alkaloid *artarine*.

H. H. Rusby.

ASHEVILLE, N. C.—Asheville is situated in Western North Carolina upon a hilly table land, at an elevation of 2,350 feet, in the culmination of the Alleghany Mountains, between the diverging ranges of the Great Smoky Mountains and the Blue Ridge.

Completely surrounding this plateau of some thirty miles in width, with the Blue Ridge to the south, east, and northeast, and the Smoky Mountains to the west and northwest, are the projecting spurs and peaks of these ranges with an elevation double and almost treble that of Asheville. The meteorological conditions of the plateau—the temperature, the purity of the air, and the amount of precipitation—are peculiarly influenced by these high mountain chains. The rain clouds, especially those approaching from a southerly direction, are saturated at a higher temperature than they meet on approaching and passing over these mountain ranges, and on that account they precipitate their moisture before reaching the plateau. In consequence there is a difference of from fifteen to twenty inches of annual rainfall, and from ten to twelve degrees in relative humidity, between places situated immediately in the surrounding mountains and the Asheville plateau.

In the winter season the temperature is moderated by the prevailing air currents from the south, but as they come as a rule from a northerly direction in the summer, the summer months are cool and pleasant.

Preferring not to make use of tabulated meteorological statistics which are difficult to decipher, and to be complete would occupy my entire available space, I may say that Asheville is practically an all-year resort, having, in the parlance of climatologists, a medium elevation, and offering favorable conditions for out-of-door life at all seasons of the year.

The Winter Months.—January and February present, however, periods of cold weather, lasting for a few days, and exceptionally for a week, and several of such "cold spells" are observed during these months.

Such a cold spell is as a rule initiated with a considerable wind movement from the north, during which the temperature falls rapidly to 10° F. or to zero, and temperatures below zero have been observed during several of the twelve winters during which the writer has had charge of the local weather bureau. As already stated, these cold spells do not last, the wind subsides after from twenty-four to thirty-six hours, and then the temperature rises. The days are bright, and during the hours of sunshine invalids can be out of doors, when properly clothed, without suffering from cold.

The humidity averages between 50 and 55 per cent. in the two winter months, and the dry atmosphere and large amount of sunshine have a stimulating and exhilarating effect upon all cases which are otherwise in a condition to profit from climatic treatment. The amount of ozone in the air reaches its greatest proportion in these months, and 70 per cent., of a scale from 0 to 100, has frequently been recorded.

In some years the winters have been very mild, but frosts occur in the spring months as late as the latter part of April. Snow rarely falls, and when it does, it melts away under the sun upon the same day or within a day or two thereafter. The average snowfall is less than two inches.

The *spring season* has its beginning between February 20th and March 10th, during which the vegetation begins to spring up, and the trees to leaf out. The days are comfortable, and while not hot, temperatures up to 75° F., during the hours from 10 A.M. to 3 P.M., are quite common.

Thunder storms occur with the advent of such warmer weather, and are attended with brisk showers, especially upon the environing high mountain ranges, where one can often see such storms in progress while the plateau enjoys bright sunshine.

The relative humidity during the spring months averages between 60 and 65 per cent.

One of the features of the spring is the beautiful and varied flora of this region, and the azalea, laurel, and rhododendron, as well as the smaller flowers of the mountains, are the delight of all visitors.

The Summer.—In some years past June has been as warm as any of the summer months, and the highest maximum temperature may fall in this month or in July or August. The highest temperature recorded in the past twelve years was 91.3° F., but 90° F. is frequently reached during the summer of every year.

Usually there are cool breezes during the day, and unless one is exposed to the direct rays of the sun, there is no discomfort on account of heat. When the sun goes down the air cools rapidly, and the nights are always comfortable and bed covers are necessary, at least after midnight.

The rainfall during the summer months is, as a rule, greater than in the winter, and heavy rains of short duration occur more frequently. I have known an inch of rain to fall in the course of an hour or two, but the excellent natural drainage carries the water off quite rapidly, and the streets become dry in a few hours.

The average rainfall for the summer is four inches per month, and the average humidity varies between 70 and 75 per cent.

The Autumn.—With but few exceptions, in the twelve years of my experience, the fall weather has been continuously pleasant and enjoyable until January, when, as stated above, colder weather usually sets in. With frosts in October the foliage of the great variety of trees and shrubs begins to turn, assuming every possible shade and hue from the green of the pine, to yellow, crimson, red, purple, and brown, and this change goes on until December or even later, when the leaves begin to fall. Visitors never tire in their admiration of this ever-varied play of colors in the closely adjacent forests, and thousands of boxes of leaves and branches of myrtle, mistletoe, holly, and galax are mailed from Asheville during the fall and winter months to distant friends and relatives.

The fall months are always delightful, the temperature declining in average and maxima gradually; and after October 1st artificial heat is frequently required in houses in the early morning and evening.

The total annual rainfall is forty inches, and is nearly equally distributed over all the months, with a slight increase in summer. There is no distinctly rainy season or month, and no distinctly dry season for any part of the year.

Having given the essential information as to the climate, I may now consider other subjects which are of interest and about which inquiries are frequently made the by distant physicians and intending visitors.

The city has a permanent population of fifteen thousand and a floating population of several thousand more, the latter consisting of people who are in search of health and pleasure. The railway station is situated in the valley near the confluence of the French Broad and the Swananoah Rivers, at a distance of a mile from the centre of the city, which is located on a bluff about three hundred and fifty feet above the river valley. The streets from the depot and in the central parts, as well as some of the residence streets, are well paved with brick, and brick pavement and macadam extend to Biltmore, a distance of two miles, to the Vanderbilt estate. Electric trolley lines connect the different parts of the city with the de-