	7 A.M.	1 P.M.	7 P.M.
	Degrees.	Degrees.	Degrees.
October	47.0	56.6	49.0
November	38.7	47.5	41.0
December	34.3	41.5	35.9
January	31.8	39.7	33.9
February	35.0	44.0	38.1
March	37.0	45.2	39.7
April	46.0	57.6	50.4
Spring: March to May	46.6	56.4	49.4
Summer: June to August	61.7	72.7	63.7
Autumn: September to November	47.3	57.4	49.8
Winter: December to February	33.8	41.7	35.9

	Degrees.
Mean annual temperature	51.0
Mean winter temperature	36.5
Mean spring temperature	50.8
Mean maximum temperature (July)	77.0
Mean minimum temperature (January)	35.2
Absolute maximum temperature (July 8th, 1870)	89.0
Absolute minimum temperature (February 12th, 1865)	11.4

Dr. Kisch states that the nycthemeral range of temperature at Montreux varies from 12° C. to 16° C. (53.6° F. to 60.8° F.); but this statement is very surprising in view of the figures just quoted from Dr. Yeo. The mean annual rainfall is fifty inches; the number of rainy days in winter and spring is twenty-one, the total number of such days throughout the year being sixty (Dr. Yeo). Dr. Kisch puts the annual number of rainy days at seventy, and tells us that the mean relative humidity is 74.7 per cent.

Snow falls, of course, at Montreux, but how frequently and to what depth I do not know. In Flechsig's Bäder-Lexikon we are told that the snow melts rapidly, a thing which might readily have been inferred from the sheltered position of Montreux, freely exposed only to southerly and southwesterly winds. We are also told by the same authority that, despite the very considerable degree of winter cold and the occurrence of snow, there are, almost every winter, even in December and January, certain days during the warmer part of which an invalid can safely sit out in the open air for several hours.

As a rule, fogs occur but rarely during the winter season; yet they were frequent in the winter of 1875–76.[1] What remains to be said respecting the climate cannot be better told than by direct quotation from Dr. Yeo's admirable work on "Climate and Health Resorts."

"In an average winter a good deal of cold weather must be expected at Montreux, as its mean winter and spring temperature is some 5° F. lower than that of Ventnor, and 4° F. lower than that of Torquay; but in favorable seasons, on the other hand, a good many bright, clear, sunny days may be expected, and comparatively few rainy ones. In November there are often a good many cold, damp, and disagreeable days.

"In spring the weather is often very variable. There are, perhaps, some very fine days, and then a sudden and unexpected return of cold, with rain or snow; so that invalids need to take great precautions at this season. Patients often ascend to Glion at this period of the year. Few people spend the summer at Montreux on account of the heat, but the autumn is a fine season up to the middle of October, when storms of rain frequently set in and there is occasionally a passing snowfall. It is in the autumn that the grape cure is in active progress at Montreux.

"It is an advantage at Montreux to have two mountain stations of different elevations, such as Glion and Les Avants, so readily accessible; for it does happen during some seasons that there is much more sunshine to be found at the higher resorts than at the lower one, and this fact is easily ascertainable.

"The winter and spring climate of Montreux, it will be seen, is by no means a perfect one; it has, however, been pointed out, as a kind of compensation, that the hotels and *pensions*, which abound here, are very comfortable, and that if the weather out of doors is bad, the invalid can find good shelter and protection indoors."

With reference to this last statement of Dr. Yeo's, it is perhaps well to remark that Dr. Kisch[2] pronounces Montreux to be very inferior to Meran, in respect to out-of-door accommodations for invalids, such as parks (Anlagen), roads, and resting-places (Ruheplätze); he says that there is a lack of variety in the food provided, and that it is not especially nourishing (nicht besonders kräftig), and that those who stay long at Montreux, even in the autumn, are apt to suffer from *ennui*. Nevertheless, despite its climatic inferiority in many respects to many more southerly health resorts, the general excellence of its hotels and *pensions*, the moderate cost of living, and the facilities for good schooling which there exist, still combine to render Montreux an attractive place of winter residence to many families; and to these attractions must be added the surpassing beauty of the scenery. The view of the Savoy Alps, which rise like a wall on the opposite side of the lake, and of the grand, snow-crowned peaks which hem in the Rhone Valley, must be seen to be adequately appreciated.

Climatotherapy.—The climate of Montreux is said to be unsuited to cases of advanced pulmonary phthisis, accompanied by marked febrile symptoms [cases of phthisis with fever had best remain at home.—E. O. O.] or by free secretion, and also to nervous patients having a tendency to depression of spirits.[3] Dr. Yeo tells us that prolonged residence at Montreux is said to be serviceable in "cases of simple chronic laryngitis, of chronic laryngo-pharyngitis, of granular pharynx"; and that "all these chronic throat affections have a good chance of cure at Montreux, especially if they are, at the same time, submitted to local treatment by inhalation," etc. He includes in his list of cases, said to be benefited by prolonged sojourn at Montreux, "cases of recurrent bronchial catarrh or tendency to catarrh, as well as cases of chronic bronchial catarrh when not too inveterate or severe; persons with hereditary predisposition to consumption, and cases of chronic phthisis and early phthisis when the general health and strength are otherwise good and there is an absence of fever; cases of chronic pleurisy with suspicion of the commencement of phthisis, as well as cases of chronic empyema healing slowly; cases of cardiac valvular disease of rheumatic origin, to ward off bronchial catarrh and fresh rheumatic attacks, also cardiac neurosis, especially if induced by excess of tobacco-smoking."

For information concerning the "grape cure," which is practised during the autumn at Montreux, and at certain other resorts in Switzerland, and elsewhere in Europe, the reader is referred to the article on *Meran*.

Huntington Richards.

[1] J. Burney Yeo: Climate and Health Resorts.
[2] Article on Montreux, in Eulenburg's Real-Encyclopädie, vol. ix.
[3] Robert Flechsig: Bäder-Lexikon, art. "Montreux."

Les Avants and Glion.—[These two resorts are in such close proximity to Montreux that mention may be made of them in this connection. Les Avants is 3,230 feet above sea level, and is reached from Montreux by a mountain railway to Glion and from thence by carriage road; or all the way from Montreux by road, in an hour and a half. It is both a summer and a winter climatic station The plateau upon which this resort stands is sheltered from the north and east by mountains, which are well wooded, and is open to the south. The climate is a mild, slightly tonic, mountain one. "The air is pure and free from dust; the heat is modified in summer by the woods and the lakes, and in winter the sun is very powerful, and the sky almost free from cloud." . . . "Great and frequent changes of temperature are, however, of not infrequent occurrence, and prove very trying to consumptive patients" (Loetscher, "Handbook to the Health Resorts of Switzerland").

It snows about twenty-eight days in winter, the sky is overcast forty-seven days and quite clear during sixty-seven. The air is very dry. The meteorological data given under Montreux are applicable to Les Avants, allowance being made for the difference in elevation. The snow generally disappears by the middle of March, and by April the vegetation is well advanced. By May the flowers are in the meadows. For such cases as require a milder climate and lower elevation than the higher Alpine resorts, such as Davos, St. Moritz, Arosa, Leysin, etc., Les Avants can be recommended. The "Grand Hôtel des Avants" affords excellent accommodations, at moderate prices. The cases to which this climate is applicable are incipient pulmonary tuberculosis without active symptoms, in individuals of good general health; bronchitis with scanty expectoration, tardy convalescence from pleurisy and pneumonia, asthma of a neurotic origin; anæmia, chlorosis, and scrofula.

Glion, 2,300 feet high, is reached by a cable railway from Montreux in six minutes. It is situated on a mountain spur, affording from its Rigi-like terrace "a magnificent view, surpassing in extent all others on the bay." It is well protected from the north and east winds, and enjoys a comparatively mild winter; hence it is adapted for a winter-cure station of moderate elevation, although it is most frequented in spring, summer, and autumn.

Like Montreux it has a milk and grape cure, as well as a Terrain cure. It is known for the purity and dryness of its air and its equable temperature. In the height of summer it is a very popular resort for visitors from Montreux. The climate of Glion is suitable for much the same class of cases as that of Les Avants. It is especially recommended for nervous patients, convalescents, the early cases of pulmonary tuberculosis, and weakly children. There are a number of good hotels and pensions, and during the summer there is an English church service.

Still higher than these two resorts is the Grand Hôtel de Caux (3,610 feet), open all the year round, less sheltered than Les Avants. (The mean annual temperature is 43° F., and relative humidity 55. Fog and mist are rare; and as in the other altitude resorts one can sit out in the sun in the depth of winter.) At the terminus of the mountain railway is the Rochers de Naye (6,470 feet), with a hotel open during the summer months.

Edward O. Otis.]

MONTVALE SPRINGS.—Blount County, Tennessee.
Post-Office.—Montvale. Hotel and cottages.
Access.—From Knoxville viâ Knoxville and Augusta Railroad, to Maryville, the present terminus of the line; thence by stage line to springs. The springs are twenty-five miles south of Knoxville. This resort is located at the foot of the Chilhowee Mountains, 1,300 feet above the sea level. The springs have been celebrated in East Tennessee for a period of fifty years or more, and long before the Civil War the location was a fashionable summer resort, where people of this and other States found health and pleasure during the heated term. From year to year extensive improvements have been made, and now we find among the picturesque mountains a watering-place supplying about everything which goes to make up a healthful and agreeable refuge from the summer heat of the semi-tropical Southern States. The big hotel building, with its seven gables, is located in a romantic spot, and around it cluster forty neat cottages, giving the place the appearance of a charming little village built among the forest trees. Walks, fountains, beautiful brooks, and flowers are found on every side, and with the evergreen mountains for a background form a picture of great loveliness. Fronting the hotel is a large park, with broad, smooth drives and walks, and grassy lawns, affording ample scope for outdoor diversions. Fountains, swings, hammocks, and rustic retreats are scattered here and there. The hotel is supplied by a system of water-works from the "Sweet William" Spring. The medicinal springs are the "Great Chalybeate" Spring, nearest the hotel, and the "Black Sulphur" Spring, on the road near Montvale. The following analysis of the Chalybeate Spring was made by Prof. S. B. Mitchell:

One United States Gallon Contains:

Solids.	Grains.
Calcium carbonate	13.26
Iron carbonate	2.40
Sodium sulphate	4.51
Calcium sulphate	74.21
Magnesium sulphate	12.00
Sodium chloride	1.96
Aluminum oxide	.50
Total	108.84

In addition to its ferruginous tonic effects this water also acts as a saline aperient. It has long been recommended as a safe and reliable remedy for many of the protean ills included under the name of dyspepsia. It is also valuable in uric-acid states, especially in those characterized by genito-urinary manifestations. The Black Sulphur Spring contains 109.30 grains of solids to the United States gallon, of which the sulphate of magnesia (grains 17.07) and the oxide of iron (grains 1.19) are the most important.

James K. Crook.

MOODYVILLE MINERAL SPRINGS.—Pottawatomie County, Kansas.
Post-Office.—Moodyville. Hotel.
Access.—Viâ Kansas Central Railroad to Blaine, thence four miles southeast to springs. These springs are three in number, and flow about twenty-five gallons per minute. According to an analysis by Prof. J. R. Eaton, of William-Jewel College, Missouri, the waters contain the following ingredients:

Calcium carbonate.	Sodium chloride.
Magnesium carbonate.	Iron (probably as carbonate), a trace.
Magnesium sulphate.	Silica, alumina, and organic matter, a small amount each.
Sodium sulphate.	

Free carbonic acid gas.

The water is used in dyspepsia and disorders of the bowels, liver, and kidneys.

James K. Crook.

MOONSEED, CANADIAN.—Menispermum. Texas sarsaparilla, Yellow parilla. "The rhizome and roots of *Menispermum Canadense* L. (fam. *Menispermaceæ*)" (U. S. P.). This is a prostrate and twining herbaceous vine, with excentrically peltate, angled or lobed, alternate leaves, and axillary panicles of pale-yellow, dicœcious flowers.

Moonseed arises from a long, slender rhizome, which, with its adhering roots, is the official portion. It is dried in flexible, tough pieces, a metre or so in length, and about five millimetres in thickness, with a finely shrivelled brown bark and yellow section. Odor slight, taste bitter. It grows in most parts of North America, and was introduced into medical use, thirty or forty years ago, as a substitute for sarsaparilla in "scrofulous affections," etc. There is no evidence to show that it is anything but an inferior bitter tonic. Its composition —*berberine* and the white, crystalline, bitter alkaloid *menispine*, soluble in water—recalls its near botanical relatives, *columbo* and *pareira*. The dose is 4 to 8 gm. (3 i.–ij.), and a fluid extract is official.

The family *Menispermaceæ*, comprising about a hundred species, mostly woody climbers of tropical regions, is notable for the great number and variety of its bitter principles, on account of which a large number of its species are used as simple bitters. Among the most important of these are, in India, various species of *Tinospora*, especially *T. cordifolia* Miers, and the wood of *Coscinium fenestratum* Colebr., the latter known as Indian calumba and largely used in India as a calumba substitute. In South America, several species of *Abuta*, especially *A. rufescens* Aubl., and a number of species of *Cocculus* are similarly employed.

Henry H. Rusby.

MOORMAN MINERAL WELL.—Washtenaw County, Michigan.
Post-Office.—Ypsilanti.
The waters of the Moorman Well are used to supply the Occidental Bath-house, which is situated near the

centre of the charming city of Ypsilanti, on the line of the Michigan Central and the Lake Shore and Michigan Southern Railroad. The bathing establishment contains forty large well-ventilated bath-rooms, besides parlors for ladies and gentlemen, smoking and reading rooms, and other adjuncts of a modern first-class institution of this kind. The water of this well has been in use since 1848, and has become widely known. The baths are highly recommended in uterine inflammations and congestions, in skin diseases, sciatica, and inflammatory rheumatism and gout. Internally the water is said to be valuable in constipation, dyspepsia, chronic alcoholism, and in hay fever. It is also used—by means of insufflation, in a douche, and in the form of a gargle—in nasal and pharyngeal catarrh. The following analysis was made by James H. Shepherd, of the Ypsilanti High School, in 1884.

ONE UNITED STATES GALLON CONTAINS:

Solids.	Grains.
Magnesium sulphate	103.76
Potassium sulphate	35.33
Ferrous salts	Traces.
Calcium sulphate	175.65
Magnesium bromide	10.57
Sodium sulphide	8.42
Phosphates	Traces.
Silicon dioxide	19.81
Calcium carbonate	57.26
Borates	Traces.
Sodium chloride	1,573.62
Lithium salts	Traces.
Calcium chloride	143.35
Barium salts	Traces.
Magnesium chloride	128.09
Strontium salts	Traces.
Organic matter	Traces.
Total	2,256.26

Sulphureted hydrogen gas, 26.84 cubic inches.

The bath-house is connected with the new Occidental Hotel, where ample arrangements are made for the comfort of guests. Ypsilanti also contains several well-known mineral wells. The most important of these are the Ypsilanti and Owens Wells. They are highly charged with mineral ingredients, and are also of the saline-calcic class. *James K. Crook.*

MORBIDITY. See *Vital Statistics.*

MORBUS MACULOSUS WERLHOFII.—(Purpura; Blutfleckenkrankheit.)—DEFINITION.—A disease characterized by the spontaneous appearance of transitory hemorrhagic areas in the skin, mucous membranes, and internal organs, and rarely associated with hemorrhages from the mucous membranes.

Extravasation of blood into and beneath the skin occurs more or less constantly in a great variety of diseases and conditions, and as such is commonly known as "secondary or symptomatic" purpura. Besides this group we have a second in which the purpuric eruption, appearing without apparent cause and unaccompanied by marked constitutional symptoms, is in itself the chief symptom. To this is given the name "primary, essential, or idiopathic" purpura. Though strictly speaking a symptom only, in the latter case we may consider it a disease.

From the large group of diseases with subcutaneous extravasations of blood Werlhof, in the latter part of the last century, isolated one to which he gave the name purpura hæmorrhagica, a term probably corresponding more or less closely with primary purpura. Later writers separated purpura simplex as a distinct disease, and established purpura urticans as one of its subdivisions. Finally, peliosis rheumatica and Henoch's purpura were described. Such a division, however, except for the purposes of clinical work, is not warranted, since no fundamental differences separating these various forms exist. We find, instead, a variation in the severity of certain symptoms, with the various types constantly merging the one into the other.

Hoffmann, Litten, and others prefer to group all varieties of essential purpura under the term morbus maculosus Werlhofii, and to consider them from a general standpoint. In this broad sense the term is here used.

ETIOLOGY.—Accurate knowledge concerning the cause of purpura is entirely wanting, in most cases no explanation of the condition being possible. Its appearance is spontaneous and primary, never endemic or epidemic. Previous physical condition seems to be unimportant.

In a series of two hundred cases, McKenzie has shown the disease to be slightly more common in men than in women, and that seventy-seven per cent. of all cases occur during the first three decades of life. Other writers believe the disease to be somewhat more common at the age of puberty.

Such conditions as poor food, wet, exposure, fatigue, debility and starvation, though often enumerated, cannot be shown to be of more etiological importance in purpura than in many other diseases. Purpura is found with the same frequency among all classes. It is never hereditary. The hemorrhagic diathesis is not infrequently associated with certain nervous conditions (severe neuralgia, nervous shock, etc.), as pointed out by Weir Mitchell and others, and to these the relation appears certain.

Venous stasis, though in itself not sufficient to produce the disease, is undoubtedly an important factor. The character of the blood in some cases suggests a possible influence in producing the condition. We may find anæmia of a secondary or even a pernicious type, leucocytosis, and changes in its chemical composition, specific gravity, and reaction.

Silbermann and Koehler, working upon animals, were able to produce the subcutaneous hemorrhages by the use of certain ferments and toxic substances injected directly into the veins. In a few cases bleeding occurred from all the internal organs as well as into the skin. Silbermann regards purpura as a primary blood disease, "causing slowing of the current, stasis with the formation of thrombi, and subsequently degeneration of the vessel walls," leading to extravasation of blood into the tissues.

Much in the nature and course of the affection suggests an infectious origin, and many attempts have been made to isolate micro-organisms from the blood. In 1884 Petrone found in the blood of a purpuric patient small round bodies which he considered spores of a bacillus, to which he gave the name of bacillus purpuræ. Rabbits inoculated from the cultures developed the typical lesions, and careful examination of the tissues demonstrated the presence of the bacilli in the capillaries. Letzerich obtained similar results and considered purpura a characteristic infectious disease. He was himself finally stricken with the disease, and from his own blood grew cultures of a bacillus probably identical with Petrone's, which by inoculation into animals produced purpura. The bacilli and spores were constantly found in the petechiæ. Gimard, Tizzoni, Giovannini, and Kolb report the isolation of various bacteria from the blood and petechiæ of patients suffering from purpura. In spite of these striking results, we must await more conclusive evidence. We are justified only in saying that in many cases of purpura the infectious origin seems unquestionable.

Arjelio believes the cause to be one of auto-intoxication through the absorption, by the intestines, of decomposed albumin.

SYMPTOMS.—A few symptoms are found more or less constantly in all grades of purpura.

Lesions in the Skin.—The cutaneous hemorrhages show an extraordinary variation. They may be round, oval, or irregular, single or confluent, and in rare cases indurated. Though commonly less than 1 cm. in diameter, they may be present as very large areas, or even the entire skin may be involved. In all cases these appear without local inflammation or hyperæmia, and on normal skin. The location of the spots is more often on the lower legs and feet, frequently on the arms and belly, more rarely on the face and chest. Their appearance is sudden and in crops, as it were. At first of a blood-red color, the areas almost immediately begin to fade, if superficial, first assuming a purplish tint, then a yellowish-green, later becoming a pale brown, the whole process

requiring from two to eight days. When the hemorrhage is deep, a bluish color is very often present; and if a considerable effusion of blood takes place, pigment is deposited which persists for weeks or months, and microscopically for years. Deep effusions of blood between the bones and periosteum give a faint blue color with deep induration, over which the skin is movable.

Hemorrhages.—In the severe forms of this disease actual bleeding from the mucous and serous surfaces occurs. Epistaxis is the form most frequently met with, but hemorrhage may also come from the throat, gums, stomach, intestines, kidneys, or bladder, or the blood may escape even into the serous cavities. Retinal hemorrhages are seldom seen.

Blood.—The blood in the majority of instances gives evidence of no striking changes, but in very severe forms one finds marked anæmia of a secondary character. In a few cases observed by Ajelio, Spietschka, Billings, and others, very profound diminution in the hæmoglobin, a considerable leucocytosis, increased blood plates, slight degeneration in the red corpuscles, and presence of a few blasts are recorded. In general, no uniform results have been obtained.

Fever of a moderate degree is often present, rarely hyperpyrexia. The pronounced febrile cases are usually of the severest form, and almost invariably end fatally.

Gastro-intestinal Symptoms.—Apart from anorexia these are wanting, or are only slight, except in the worst forms of purpura. Intense abdominal cramps, resembling the crises of locomotor ataxia or the colic of chronic lead poisoning, accompanied by vomiting and diarrhœa, are pronounced in occasional instances.

Albuminuria without evident nephritis of definite character is sometimes found, especially late in the course of the disease.

Throat Symptoms.—Osler calls attention to the occurrence of moderate symptoms of sore throat with local necrosis.

The symptoms of purpura are subject to extreme variations, both in their intensity and in their grouping, in many cases changing quickly from one type to another while under observation. As emphasized above, no accurate division of the disease into varieties is possible, but for purposes of description and clinical study we may describe three main forms, namely, purpura simplex, purpura rheumatica, and purpura hæmorrhagica. The prominent symptom of the first is the subcutaneous ecchymoses, of the second the arthritic phenomena, and of the third the bleeding from mucous surfaces. By many authors a fourth form is described, the so-called Henoch's purpura, in which the combination of marked abdominal symptoms, subcutaneous hemorrhages, and joint manifestations, are the distinctive symptoms.

Purpura Simplex.—Suddenly without prodromes, and in the majority of cases unaccompanied by constitutional symptoms, ecchymoses develop on the extremities. The eruption but seldom invades the trunk and face. In exceptional cases there may be constitutional disturbances, as slight fever, malaise, moderate digestive symptoms, rapidly increasing anæmia of a mild order, and even slight swellings with pain in the legs or arms. There is commonly slight diarrhœa. The patient usually recovers in a few days, but some cases have proved fatal after only a short course.

Under the name of *purpura urticans* are included those cases in which the ecchymoses take on the form of urticaria.

Purpura Hæmorrhagica.—The name morbus maculosus Werlhofii, which we have used to include all primary purpuric diseases, is often restricted to this form. To this group belong all severe and obstinate cases of purpura in which bleeding takes place from serous or mucous surfaces. It is often observed without fever or prodromes, but more frequently the attack is ushered in by definite constitutional disturbances (headache, malaise, pains all over the body, diarrhœa, and vomiting), which after a few days are followed by hemorrhages into the skin and bleeding from mucous membranes. In exceptional cases, this last-mentioned symptom precedes all others. The bleeding, although it comes more commonly from the nose or mouth, may also come from the lungs, stomach, intestines, kidneys, or bladder. Not infrequently the hemorrhage becomes profuse and uncontrollable, leading to alarming symptoms. The presence of moderate pain in the joints with local œdema and tenderness does not exclude cases from this group. Anæmia is frequently present, occasionally of an extreme character; in one of Billings' cases the hæmoglobin sank rapidly to fifteen per cent., and the red cells to 560,000 per c. mm.

A separate but needless division of purpura hæmorrhagica sometimes made is that of *purpura fulminans*, this term being applied to cases which are of a very violent nature. The acute onset, rapid course, and death in from one to five days, strongly suggest a septic fever.

Purpura Rheumatica (Peliosis Rheumatica, Schönlein's Disease).—The occurrence of an eruption either purpuric, urticarial, or erythematous, together with definite arthritic phenomena of pain and swelling, gastro-enteric symptoms, and a prolonged course, characterizes this affection. It is a disease of young adults. Unlike purpura hæmorrhagica, this form almost never shows a sudden onset; for several days or a week the patient complains of weakness, sore throat, fever, anorexia, vomiting, and other general symptoms. These are followed by shooting pains and stiffness in the muscles and joints, the typical course showing the earliest involvement in the lower extremities. The œdema, though exceedingly variable, is at times intense and may occur in any part of the body, even on the face. The rash, which frequently appears in the vicinity of the affected joints, ordinarily corresponds to the simple purpuric type, but may show urticarial wheals or even nodular infiltrated areas and vesicles. In the case of a young woman whom I saw at the Massachusetts General Hospital, the urticarial spots appeared with great regularity late every afternoon for a period of eight days. In the same case there was considerable necrosis of the soft palate and both tonsils. Opinions differ widely as to the relation of this disease to rheumatism, but at present we have no definite evidence of any rheumatic origin.

Henoch has described another form of purpura which occurs mainly in children, and is marked by ecchymoses beneath the surface of the skin, bleeding from the mucous membranes, joint manifestations, renal and gastro-enteric symptoms. Diarrhœa and vomiting with intense abdominal cramps are especially characteristic, as are also the occurrences of malæna and hæmatemesis.

PATHOLOGICAL ANATOMY.—The petechiæ and ecchymoses constitute the only constant lesions. The conditions in the tissues in the immediate vicinity of the extravasations are of considerable interest. Many of the small blood-vessels show a very marked thickening with hyaline degeneration, and in many instances even necrosis of the wall, associated with extensive thrombus formation. About the vessels the connective tissue is densely infiltrated with blood corpuscles and blood pigment. Although this is not a constant occurrence, the muscle may show small hemorrhagic areas. Depending upon the severity and type of the disease, the mucous membranes and internal organs may likewise give evidence of hemorrhage. In a few instances, collections of blood have been found beneath the periosteum of the bones. No arthritic changes can be demonstrated beyond a moderate hemorrhage into the synovial membrane. Not uncommonly the spleen, Peyer's patches, and the lymph nodes are enlarged and contain much blood pigment.

COMPLICATIONS AND SEQUELÆ.—The complications which are most serious and which are most frequently encountered, are those arising in consequence of the internal hemorrhages, either parenchymatous or into serous cavities. Nephritis sometimes develops, even years after the purpuric attack. Rarely pneumonia or œdema of the lungs complicates the disease.

COURSE AND PROGNOSIS.—As in its symptoms, the course of purpura in all forms is subject to great variations, depending very largely upon the severity. In gen-