board a vessel should lead to the indictment of the captain or owners for criminal negligence. An outbreak of the disease in an almshouse is evidence of culpable neglect on the part of the managers.

Treatment.—The juice of two or three lemons daily and a varied diet, with plenty of fresh vegetables, suffice to cure all cases of scurvy, unless far advanced. When the stomach is much disordered, small quantities of scraped meat and milk should be given at short intervals, and the lemon-juice in gradually increasing quantities. A bitter tonic, or a steel and bark mixture, may be given. As the patient gains in strength, the diet may be more liberal and he may eat freely of potatoes, cabbage, water-cresses, and lettuce. The stomatitis is the symptom which causes the greatest distress. The permanganate of potash or dilute carbolic acid forms the best mouth-wash. Pencilling the swollen gums with a tolerably strong solution of nitrate of silver is very useful. The solution is better than the solid stick, as it reaches to the crevices between the granulations. The constipation which is so common is best treated with large enemata. For other conditions, such as hæmorrhages and ulcerations, suitable measures must be employed.

XI. PURPURA.

Strictly speaking this is a symptom, not a disease; but under this term are conveniently arranged a number of affections characterized by extravasations of the blood into the skin. The purpuric spots vary from one to three or four millimetres in diameter. When small and pin-point-like they are called petechiæ; when large, they are known as ecchymoses. At first bright red in color, they become darker, and gradually fade to brownish stains. They do not disappear on pressure.

It is extremely difficult to make a satisfactory classification of purpura. Perhaps as good a division as can be made is the following:

Symptomatic Purpura.—(*a*) **Infectious.**—In pyæmia, septicæmia, malignant endocarditis (particularly in the latter affection), ecchymoses may be very abundant. In typhus fever the rash is always purpuric. Measles, scarlet fever, and more particularly small-pox, have each a variety characterized by an extensive purpuric rash.

(*b*) **Toxic.**—The virus of snakes produces with great rapidity extravasation of blood; a condition which has been very carefully studied by Weir Mitchell. Certain medicines, particularly copaiba, quinine, belladonna, mercury, ergot, and the iodides occasionally, are followed by a petechial rash. Under this division, too, comes the purpura associated with jaundice.

(*c*) **Cachectic.**—Under this heading are best described the instances of purpura which develop in the constitutional disturbance of cancer, tuberculosis, Hodgkin's disease, Bright's disease, scurvy, and in the debility of

old age. In these cases the spots are usually confined to the extremities. They may be very abundant in the lower limbs and about the wrists and hands. This constitutes, probably, the commonest variety of the disease, and many examples of it can be seen in the wards of any large hospital.

(*d*) **Neurotic.**—One variety is met with in cases of organic disease. It is the so-called myelopathic purpura, which is seen occasionally in locomotor ataxia, particularly following attacks of the lightning pains and, as a rule, involving the area of the skin in which the pains have been most intense. Cases have been met with also in acute myelitis and in transverse myelitis, and occasionally in severe neuralgia. Another form is the remarkable hysterical condition in which stigmata, or bleeding points, appear upon the skin.

(*e*) **Mechanical.**—This variety is most frequently seen in venous stasis of any form, as in the paroxysms of whooping-cough and in epilepsy.

Arthritic.—This form is characterized by involvement of the joints. It is usually known, therefore, as rheumatic, though in reality the evidence upon which this view is based is not conclusive. For the present it seems more satisfactory to use the designation arthritic. Three groups of cases may be recognized:

(*a*) A mild form, often known as **Purpura simplex,** seen most commonly in children, in whom, with or without articular pain, a crop of purpuric spots appears upon the legs, less commonly upon the trunk and arms. As pointed out by Graves, this form is not infrequently associated with diarrhœa. The disease is seldom severe. There may be loss of appetite, and slight anæmia. Fever is not, as a rule, present, and the patients get well in a week or ten days. These cases are usually regarded as rheumatic, and are certainly associated, in some instances, with undoubted rheumatic manifestations; yet in a majority of the patients which I have seen the arthritis was slighter than in the ordinary rheumatism of children, and no other manifestations were present.

(*b*) **Peliosis Rheumatica** (Schönlein's Disease).—This remarkable affection is characterized by multiple arthritis, and an eruption which varies greatly in characters, sometimes *purpuric*, more commonly associated with *urticaria* or with *erythema exudativum*. The disease is most common in males between the ages of twenty and thirty. It not infrequently sets in with sore throat, a fever from 101° to 103°, and articular pains. The purpuric rash makes its appearance first on the legs or about the affected joints. It may be a simple purpura or ordinary urticarial wheals. In other instances there are nodular infiltrations, not to be distinguished from erythema nodosum. The combination of wheals and purpura, the *purpura urticans*, is very distinctive. Much more rarely vesication is met with, the so-called *pemphigoid purpura*. The amount of œdema is variable; occasionally it is excessive. In one case, which I saw in Montreal with Molson, the chin and lower lip were enormously swollen, tense, glazed, and deeply ecchymotic. The eyelids were swollen and purpuric,

while scattered over the cheeks and about the joints were numerous spots of purpura urticans. These are the cases which have been described as *febrile purpuric œdema*. The temperature range, in mild cases, is not high, but may reach 102° or 103°.

The urine is sometimes reduced in amount and may be albuminous. The joint affections are usually slight, though associated with much pain, particularly as the rash comes out. Relapses may occur and the disease may return at the same time for several years in succession.

The diagnosis of Schönlein's disease offers no difficulty. The association of multiple arthritis with purpura and urticaria is very characteristic. In a case which I saw with Musser there was endo-pericarditis, and the question at first arose whether the patient had malignant endocarditis with extensive cutaneous infarcts.

Schönlein's peliosis is thought by most writers to be of rheumatic origin, and certainly many of the cases have the characters of ordinary rheumatic fever, *plus* purpura. By many, however, it is regarded as a special affection, of which the arthritis is a manifestation analogous to that which occurs in hæmophilia. The frequency with which sore throat precedes the attack, and the occasional occurrence of endocarditis or pericarditis, are certainly very suggestive of true rheumatism.

The cases usually do well, and a fatal event is extremely rare. The throat symptoms may persist and give trouble. In two instances I have seen necrosis and sloughing of a portion of the uvula.

(*c*) There is an arthritic purpura which presents marked gastro-intestinal and renal symptoms. This not uncommon but little recognized form is met with most frequently in children and sets in usually with pains, but rarely much swelling in the joints. Purpura or purpura urticans develops about them, and the case at first looks like one of so-called rheumatic purpura. Soon other symptoms develop: the child has attacks of severe colic with vomiting and diarrhœa, true gastro-intestinal crises; which may recur with great frequency, particularly at night. There may be hæmorrhage from the bowels and soon renal symptoms. There are albumen and tube-casts, often blood, and sometimes all the symptoms of an intense hæmorrhagic nephritis. The cases may drag on for months. Death may occur from the nephritis, or from the severe gastro-intestinal disturbance. Couty, who has given the best description of this affection, regards it as a form of nervous purpura. This form has an interesting connection with the angio-neurotic œdema, which is also characterized by severe gastro-intestinal crises. Of four cases which have been under my care one died of the nephritis.*

Purpura Hæmorrhagica.—Under this heading may be considered the cases of very severe purpura with hæmorrhages from the mucous membranes. The affection, known as the *morbus maculosus* of Werlhof,

* New York Medical Journal, 1889.

is most commonly met with in young and delicate individuals, particularly in girls; but cases are described in which the disease has attacked

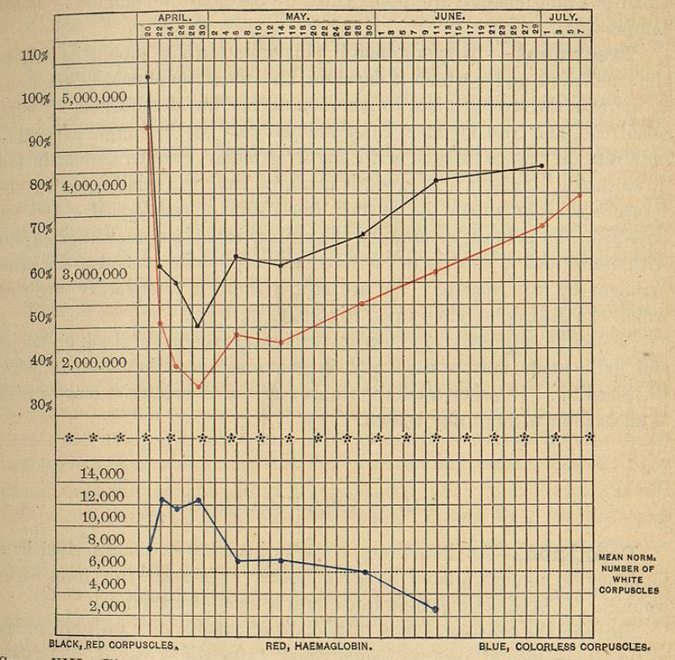

CHART XIV.—Illustrates the rapidity with which anæmia is produced in purpura hæmorrhagica and the gradual recovery.

adults in full vigor. After a few days of weakness and debility, purpuric spots appear on the skin and rapidly increase in numbers and size. Bleeding from the mucous surfaces sets in, and the epistaxis, hæmaturia, and hæmoptysis may cause profound anæmia. Chart XIV illustrates the rapidity with which anæmia is produced and the gradual recovery. Death may take place from loss of blood, or from hæmorrhage into the brain. Slight fever usually accompanies the disease. In favorable cases the affection terminates in from ten days to two weeks. There are instances of purpura hæmorrhagica of great malignancy, which may prove fatal within twenty-four hours—*purpura fulminans*. This form is most commonly met with in children, and is characterized by cutaneous hæmorrhages, which develop with great rapidity. Death may occur before any bleeding takes place from the mucous membranes.

In the *diagnosis* of purpura hæmorrhagica it is important to exclude scurvy, which may be done by the consideration of the previous health,

the circumstances under which the disease develops, and by the absence of swelling of the gums. The malignant forms of the fevers, particularly small-pox and measles, are distingished by the prodromata and the higher temperature.

Treatment.—In symptomatic purpura attention should be paid to the conditions under which it develops, and measures should be employed to increase the strength and to restore a normal blood condition. Tonics, good food, and fresh air meet these indications. In the simple purpura of children, or that associated with slight articular trouble, arsenic in full doses should be given. No good is obtained from the small doses, but the Fowler's solution should be pushed freely until physiological effects are obtained. In peliosis rheumatica the sodium salicylates may be given, but with discretion. I confess not to have seen any special control of the hæmorrhages by this remedy. We are still without a trustworthy medicine which can always be relied upon to control purpura.

Aromatic sulphuric acid, ergot, turpentine, acetate of lead, or tannic and gallic acids, may be used, and in some instances they seem to check the bleeding. In other cases the whole series of hæmostatics may be tried in succession without any benefit.

XII. HÆMOPHILIA.

Definition.—An hereditary, constitutional fault, characterized by a tendency to uncontrollable bleeding, either spontaneous or from slight wounds. It is sometimes associated with a form of arthritis.

Early in the century several physicians of this country called attention to the occurrence of profuse hæmorrhage from slight causes. The fact that fatal hæmorrhage might occur from slight, trifling wounds had been known for centuries. The recognition of the family nature of the disease is due to the writings of Buel, Otto, Hay, Coates, and others in this country. The disease has been elaborately treated in the monographs of Legg and Grandidier.

Etiology.—In a majority of cases the disposition is hereditary. The fault may be acquired, however, but nothing is known of the conditions under which the disease may thus arise in healthy stock.

The hereditary transmission in this disease is remarkable. In the Appleton-Swain family, of Reading, Mass., there have been cases for nearly two centuries; and F. F. Brown, of that town, tells me that instances have already occurred in the seventh generation. The usual mode of transmission is through the mother, who is not herself a bleeder, but the daughter of one. Atavism through the female alone is almost the rule, and the daughters of a bleeder, though healthy and free from any tendency, are almost certain to transmit the disposition to the male offspring. The affection is much more common in males than in females,

the proportion being estimated at eleven to one, or even thirteen to one. The tendency usually appears within the first two years of life. It is rare for manifestations to be delayed until the tenth or twelfth year. Families in all conditions of life are affected. The bleeder families are usually large. The members are healthy-looking, and usually have fine, soft skins.

Morbid Anatomy.—No special peculiarities have been described. In some instances changes have been found in the smaller vessels; but in others careful studies have been negative. An unusual thinness of the vessels has been noted. Hæmorrhages have been found in and about the capsules of the joints, and in a few instances inflammation of the synovial surfaces. The nature of the disease is undetermined, and we do not yet know whether it depends upon a peculiar frailty of the blood-vessels or some peculiarity in the constitution of the blood, which prevents the normal thrombus formation in a wound.

Symptoms.—Usually hæmophilia is not noted in the child until a trifling cut is followed by serious or uncontrollable hæmorrhage, or spontaneous bleeding occurs and presents insuperable difficulties in its arrest. The symptoms may be grouped under three divisions: external bleedings, spontaneous and traumatic; interstitial bleedings, petechiæ and ecchymoses; and the joint affections. The external bleedings may be spontaneous, but more commonly they follow cuts and wounds. In 334 cases (Grandidier) the chief bleedings were epistaxis, 169; from the mouth, 43; stomach, 15; bowels, 36; urethra, 16; lungs, 17; and in a few instances bleeding from the skin of the head, the tongue, finger-tips, tear-papilla, eyelids, external ear, vulva, navel, and scrotum.

Traumatic bleeding may result from blows, cuts, scratches, etc., and the blood may be diffused into the tissues or discharged externally. Trivial operations have proved fatal, such as the extraction of teeth, circumcision, or venesection. It is possible that there may be local defects which make bleeding from certain parts of the body more dangerous. D. Hayes Agnew mentioned to me the case of a bleeder who had always bled from cuts and bruises above the neck, never from those below. The bleeding is a capillary oozing. It may last for hours, or even many days. Epistaxis may prove fatal in twenty-four hours. In the slow bleeding from the mucous surfaces large blood tumors may form and project from the nose or mouth, forming remarkable-looking structures, and showing that the blood has the power of coagulation. The interstitial hæmorrhages may be spontaneous, or may result from injury. Petechiæ or large extravasations—hæmatomata—may occur, the latter usually following blows.

The joint affections of hæmophilia are remarkable. There may simply be pain, or attacks which come on suddenly with fever, and closely resemble acute rheumatism. The larger joints are usually affected. Arthritis may usher in an attack of hæmorrhage.

So far as the examination of the blood goes, no changes of special moment have been noted. When the bleeding has been severe it is thin