

The hemorrhagic diathesis / Charles P. Frantz.

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works of A. and G. de Negri, and Schunck, and especially in those of Dedekind.

Purple among the ancients played an important role, and was, as is said, in Asia, weighed with silver. In Rome the dignitaries were known as the purpurati. The high estimation of the dyestuff by the ancients depended, as Lacaze-Duthiers says, upon the fact that neither the plant coloring material, nor that of cochineal, which is mentioned by Pliny, was able to withstand the burning sun of Italy, of Greece and of the Orient, as could purple. Purple fabrics were distributed all over Europe and Greece. One of the prettiest illustrations is to be found in Rome, where from the shells of the creature that have been utilized there has, in the course of time, accumulated an entire hill, the "Monte Testaccio."

The purple secretion is a peculiarity of the species *Purpura* and *Murex*, and it was especially the varieties, *Purpura haemastoma* and *lapillus*, *Murex brandaris*, *trunculus* and *erinaceus*, which succeeded in ancient times to industrial value (Negri).

An examination of O. Schmidt's account and the description which Pliny gives of these snails used for coloring purposes, will show that the ancients designated our present species *Purpura* as *Buccinum*; *Murex*, on the contrary, was *Purpura*.

That well known investigator found in Aquileja the location of an old purple factory, and was able to confirm that the shells and shell fragments there found belonged only to two kinds, *Murex brandaris* and *trunculus*.

After the overthrow of antique culture, the manufacture of purple, as well as other manufactures became forgotten, and it remained for the new era to rediscover them.

In the year 1683 William Cole, in Bristol, aroused great excitement by discovering a snail with the help of which a dyer of the neighborhood was able to prepare an article which would impart a beautiful and enduring red color (Sacc). Fabius Columna (1616) and Major (1675) had already made mention of the purple of the ancients (see Schunck). The observations of Cole were continued by Bernard de Yussien, Reamur, Duhamel and others.

Among the fisher people on the shores where the purple snail is abundant, this coloring material seems not to have gone entirely out of use. Lacaze-Duthiers was surprised to see that the fishers on the strand von Mahon, dipped little pieces of wood in the liquor of the purple snail, and therewith made marks upon their wash, which, not being immediately visible, were by the sunlight brought out in a beautiful color.

Interesting is the statement of Schunck, that purple dyeing had for a long time been systematically carried on by the natives of the Pacific coast of Central America, namely, Nicaragua and Costa Rica; and it would also be interesting to learn if this art had been first obtained from Europeans, or whether they had discovered it themselves. The secretion of the purple gland resembles in appearance and consistency, pus, and can be collected with the aid of a brush. If a light be used the chromogen contained therein, becomes first, green, then blue, and finally purple red. Duhamel (1736) first correctly perceived that light was the effective agent. It is worthy of note that a discovery of such high grade as the change of substance by means of light, so long preceded the invention of photography.

According to Schunck the change of the chromogen is the result only of the influence of direct sunlight, while an artificial light and moonshine, do not produce the same effect.

In darkness the chromogen remains a long time unchanged, and then, by exposure to light, will take on the purple color.

How glorious is the origin of man's "purple and fine linen!"

The Bible account of the evolution of the world contained in Genesis was not original with the Hebrews, but borrowed from the east, during the captivity at Babylon.

Modern discovery by the telescope showed the glowing masses of matter in a gaseous state and performing gyratory movement. According to Laplace, the matter of the solar system was once diffused thus through space, and extended far beyond the outermost planet, Neptune. Heat and gravitation of this nebulous mass caused contraction, and rotation brought on centripetal and centrifugal forces. From the rings thus formed and cast off, spheres were formed as dew drops are formed. Thus all the planets were formed.

Living things are found in the earth's crust. The first remains are of those of simplest and featureless formation, so low in structure as to be neither mineral, vegetable or animal. One of these protozoa is the ameba, a jelly-like particle, hardly distinguishable from water in which it lives. Another is the sponge. Out of these primordial forms, developed all animal and vegetable life. They multiplied by budding and composed rocks. Then came radiales, sub-kingdom of animals, like the rays of stars or limbs of a tree like the coral. Some plants capture insects. The principle of sex holds throughout the vegetable and animal worlds. Some plants are sensitive, possessing nervous vitality. All

these resemblances point to a common origin of vegetation and man.

The scientist traces the line of march of evolution through the ages up to present man, through divisions, improvements, defeats and successes. In animals there is a steady progress forward, toward more elaborate complex and perfect organization. The first animals have no organs, no members, constantly change form and their food into any part of the body. But in the growth of generations all organs and members, stomach, nerves, bones, heart and lungs, fins, wings, feet and hands gradually develop. Nothing comes suddenly. First, there is trace of a rudiment which grows through the lapse of ages, improving with succeeding generations until a matured perfection of an animal organism is attained. Thus in the eons of time man was attained. Evolution of brain tends to belief in spiritual end. Consider a human hand. The corresponding member of the fish is the fin. In the reptile it is a foot, in which to go forth on land. In the fore limb of the ape, it is put to more intelligent use. With it he plucks a nut, or takes up a stone to crack it. He also uses it as means of locomotion. With man it is no longer a foot, on which he walks, but an instrument of the mind, of the soul. Look at the face. In the fish it is expressionless. In higher animals, more distinct, and symbolizes low intelligence. But with man it is the mirror of highest thought and emotions. The brain of a fish is just as prophetic rudiment advancing through the animal kingdom, until in man it is balanced vertically on the vertebral column, and domes heavenward to become the abode of mind, which makes him the wonder and glory of the world. Thus came man, and our idea of an immortal spirit has evolved in the same way, through ages of the dim and nebulous, amebic-past.

THE CYSTS OF THE SPLEEN.—W. A. Bryan, Nashville, Tenn. (*Jour. A. M. A.*, Sept. 2), reports a case of simple multilocular splenic cysts of large size removed by splenectomy. The cystic spleen weighed $2\frac{1}{2}$ pounds, and the only etiologic antecedent known was malaria. He reviews at length the subject of splenic cysts, and gives brief abstracts of the cases he has collected from the literature. While small cysts may give no trouble, splenectomy, he holds, is advisable when the organ is functionally destroyed, and not so completely adherent as to make its removal dangerous. The only other recourse is open cyst drainage, except where one can be assured that the growth is serous or hematic, in which case aspiration once or twice and removal of all the fluid may suffice to effect a cure.

THE HEMORRHAGIC DIATHESIS.*

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AMONG the heirlooms known as family diseases perhaps that of which there is least certainty is the constitutional anomaly known as hemophilia.

While it was for centuries recognized that fatal hemorrhage had occurred from very slight wounds and abrasions, it remained for American physicians to determine the family tendency of the disease. In the early years of the past century, Buel, Coates, Hay, Otto and others began to systematize the scanty facts obtainable in relation to it.

Its hereditary tendency is the one prominent fact concerning it that is accepted absolutely. Authors differ as to its acquirability. Stengel maintains that it may develop as a result of typhoid, typhus, anthrax, septicemia and phosphorus poisoning, in anemia, pernicious anemia and leukemia. Osler, Holt, Nicholls, Hare, Learmouth, DaCosta, Sajous, Hughes and others agree with Stengel. Hirst believes that syphilis may also add to the rank of the hemophiliac. In these cases the condition is probably due to altered blood states primarily, and secondarily from an altered state of the blood vessels; this secondary condition following as a natural sequence through decreased nourishment which the vessels receive from the altered blood which furnishes their food. Strumple believes the condition in every instance congenial and usually hereditary.

Its mode of transmission is mainly through the mother to her male offspring, though fortunately not every male child of a marked mother is a bleeder. Both male and female inherit the dyscrasia in the relation of about twelve to one, while one good democratic author loyally places the ratio at sixteen to one.

The general characteristic is the abnormal tendency to bleed upon the slightest, or no provocation. There may be absolutely no exciting factor, hemorrhage either external or internal occurring during a quiet sleep. Types gradate from the full blooded, plethoric, dark complexioned, with redness of face and full bounding pulse to the pale faced, anemic individual who is constantly struggling with death. From the variance of these types it will be seen that recognition of hemophilia must have to do with history, both individual and family. Blood counts and the most extensive blood examination fail to reveal anything typical or exclusive to this

* Read before the Iowa District Medical Society, at Burlington, Iowa, January, 1905.

disease. At best it can only serve to classify it with scurvy and purpura.

While the average length of life of hemophilia will approximate twenty years, over fifty per cent die before reaching their eighth year. The immediate cause of death may not be hemorrhage, but while the recuperating power of the bleeder is phenomenal, many of them—from the impoverished condition of the blood and system, become easy victims of intercurrent diseases.

Seventy per cent of cases appear before their sixth year. If not recognized before dentition begins, this trying period usually puts its brand upon the patient. Puberty is the next favorable time for its manifestation. If he is happily tided over these years of early life, nature begins a fortifying period which affords him increased chances against a bleeder's death with each succeeding cycle.

Hemorrhages may be designated from their sources as arterial, venous and capillary. With the disease in question we have practically always to do with capillary oozing. While arterial and venous hemorrhage may be troublesome, it is the constant oozing from a capillary surface that annoys, agitates, distresses and finally distracts the physician who has been unlucky enough to have unknowingly operated upon a bleeder. I say unknowingly advisedly, for there is the same tendency with a bleeder to conceal that fact from his physician, that there is with a tubercular patient to conceal his disease from his friends.

Hemorrhage may occur from cuts, abrasions, bruises or spontaneously. From the two latter there may be bleeding beneath the surface of the skin or mucous membrane amounting to ecchymosis and suggillation, or suffusion into an organ or joint. The knee-joint is the most frequent seat of internal hemorrhage, giving us at times almost a typical rheumatic or arthritic joint. Besides these manifestations in both male and female, to the female may be added the excessive menstrual flow. Owing to her periodic depletion there is usually less blood lost from traumatic and spontaneous causes than in the male. Her menses may be four or five times that of the average woman. Fortunately nature fortifies her during pregnancy and labor, so that her life is not put in jeopardy to any greater degree than is that of the non-hemophilia. Here Jewett takes exceptions however.

Heredity sums up all that is certain as to the etiology of this peculiar condition, though the certain diseases already enumerated may be classed as etiological factors.

Abnormal thinness of vessel walls, decreased alkalinity and lessened coaguability of the

blood have been definitely determined. Notwithstanding serious and severe hemorrhage a decided leucopenia may result in hemophiliacs. The contrary is true, however, in scurvy and purpura.

The normal coagulability of the blood depends upon the presence of unorganized fibrin ferment. This is capable of separating the plasma and corpuscles into serum, fibrin and corpuscles. It is then that the fibrin and corpuscles are capable, under usual and ordinary circumstances, of forming a clot. An absence of, or decrease in the proportion of fibrin ferment, a deficiency in the plasma of the blood giving rise to a lessened quantity of fibrin or a paucity of corpuscles would each lead to a lessened tendency of the blood to clot.

The fact that leucocytosis is increased in hemophilia places the burden upon the fibrin ferment or fibrinogen which forms the fibrin. As a matter of fact the blood has been found deficient in fibrin ferment. Why this deficiency exists is not known.

The abnormal thinness of the vessel walls is largely restricted to the intima, and to a deficiency of muscular fibres in the muscular coat. This condition has also been found in healthy individuals and is therefore not distinctive. Fatty degeneration of the intima is a frequent accompaniment, but it is a mooted question whether it is due to this disease, or whether it is a direct result of the coincident anemia. As to the heart itself, it has been found of normal size and texture; it has been found decreased in size; and it has also been found hypertrophied, and hypertrophied and fatty. We must, therefore, conclude again that here nothing distinctive has been attached to its pathology.

The disease usually evidences itself during early childhood, though seldom during the first year of life. If bleeding does occur during this first year it is usually from bruises rather than spontaneously or from cuts or abrasions. There may be spontaneous bleeding however at any time, even during the first week of extra-uterine life; while Jewett asserts that prenatal hemophilia have been recorded.

Symptoms may be grouped under three divisions, viz., external bleeding, either spontaneous or traumatic; internal or interstitial, petechia and ecchymosis; and joint affections. Hemorrhage may take place by rhexis or by diapedesis, and in order of their frequency there may be epistaxis, hemoptysis, hematemesis, enterorrhagia, metrorrhagia, menorrhagia, etc. Practically none of the mucous membranes nor the thinner skinned areas are exempt, bleeding occurring from the umbilicus, scrotum, lobe of ear, finger

tips, eyelids, tear papilla, etc. Hirst reports a case of a child bleeding to death from the conjunctiva, actually weeping tears of blood. D. Hayes Agnew reports a case in which bleeding was always profuse and uncontrollable from cuts and bruises about and above the neck, while below the neck bleeding was readily arrested.

No case should be diagnosed as a "bleeder" from a single uncontrollable hemorrhage, even though it be spontaneous. Repeated attacks, either spontaneous or traumatic, history of patient, together with that of his family, should be thoroughly looked into. If joint lesions referable to no other causes have also existed, the diagnosis is more probably correct. The condition cannot easily be confounded with any other disease, although it is less easily determined in the acquired form. Joint lesions in a first attack may be confounded with rheumatic fever and arthritis. Here we may carefully look into the history of the patient and into the family tree, examine the heart, and find no response to the salicylates and other rheumatic remedies. Hemorrhage into a joint may result in ankylosis.

The initial attack seldom proves fatal and few die in the first year of life. The older the patient the better the prognosis. It is better in girls than in boys. In Grandidier's statistics 45 per cent did not reach their eighth year. Hemophilia, acquired, do not at the same time acquire so vigorous recuperative power as have the hereditary type. Prognosis in these cases is therefore less favorable, and they are more liable to intercurrent disease.

Prophylaxis is the watchword in treatment of the disease—hygienic, dietetic, preventative before operations. The patient, under the physician's direction should studiously strive for all that goes to build up the constitution—outdoor life, fresh air, sufficient but never over-exercise, cautious eating—never overtaxing the stomach, nor his muscular, nervous or circulatory systems and never postponing a call of nature. His food should be easily digestible, no excess of meat, rather fish, of wine sparingly, diluted claret being best and with meals if at all. He must avoid plethora, especially periodical tendencies to it. Attention should be given his refraction and every catarrhal condition should have attention. The child should never be allowed to run barefooted, neither out of doors nor within the home. Vaccination should be undertaken with extreme care and with the utmost aseptic precaution. It should be preceded by ergot. Absolutely no operation for cosmetic purposes should be undertaken.

There is one operation in my opinion

where, if otherwise indicated, we can well afford to take the risk. I refer to obstructive adenoids. They should early be removed in spite of the tendency to uncontrollable hemorrhage. It should be undertaken with the utmost precaution and care, with everything in readiness to staunch the flow of blood. It should be preceded by three or four doses of fluid extract of ergot every hour according to age of patient, or by the administration of calcium chloride one-half hour before operating. It should also be preceded by the passing of tapes through each nares, bringing them out through the mouth and attaching gauze plugs to them for plugging the posterior nares. These tapes should be held by an assistant out of the way of the operator. After the operation is completed the plugs should of course be hurriedly drawn into place and additional packing inserted into the vault of the pharynx. Adrenalin chloride is best for saturating these plugs and packing for the purpose of contracting some of the smaller vessels. Styptics here, as elsewhere, for the control of hemorrhage in hemophilia are worse than useless. Rest in bed must follow.

In the treatment of bleeding beneath the skin the use of cold applications is indicated. Care should be exercised in its use, however, as gangrene may follow. In using any application of cold a piece of lint should be placed between it and the skin in order that the moisture may be taken up. If hemorrhage into a joint has occurred, recumbent position with elevation of the limb, rest, splint, cold or evaporating lotion, with ergot or calcium chloride internally are indicated. Never massage nor aspirate. When effusion has disappeared passive movement should be cautiously resorted to. For external hemorrhage, compression, ice and absolute rest comprise the best armamentarium. Cold not only tends to contract cutaneous vessels but reflexly the deeper ones as well, e.g., in operations for cleft palate or hare-lip slapping the face with a cold wet towel or dashing cold water over it will stop the hemorrhage.

Styptics in the main are of no value. In order to be effective it is necessary for them to enter the open vessels as the only means of aiding in forming a clot. This, with the flow of blood to oppose entrance into the vessels, is clearly impossible, the styptic being immediately washed away. Furthermore the use of styptics tends to the formation of a slough on the surface of the wound, and there is therefore an increased danger of micro-organisms beginning their work in the adjacent tissue. Gauze soaked in fibrin ferment hastens coagulation, but it must be

fresh and it is difficult to obtain. The use of the cautery is generally good. It should be used only slightly red; dull red heat sears the tissue, sticking it together, and clotting occurs within. White heat cuts through the vessels and hemorrhage continues as before.

Fainting after severe hemorrhage tends to stop bleeding, and following up this circumstance *veratrum viride* has been used in anticipation of nature's method. In one case of a woman aged 20, there was injected ten minims of the tincture followed by immediate control of profuse tonsillar hemorrhage. This patient was not a hemophilia.

CASE REPORTS.

CASE I.—Acquired Hemophilia.—Male, white, age 46; occupation, baggageman; fleshy, red faced, thin skinned, vessels showing extensively over face, tendency to plethora, family history negative as to hemophilia, same as to own history up to last August, at which time he was referred to me by a general practitioner who had brought him through a siege of typhoid several months previously. Patient had repeated epistaxis and petechiae during his illness. After a lapse of six or eight months, during which time his recovery had been uneventful and eminently satisfactory, there occurred a spontaneous epistaxis which lasted about four hours and was very copious, the patient repeating to me the words of the physician who attended him at the time in a distant city, saying that "he had lost fully a gallon of blood." For this I am not vouching of course. After recovery from this loss the patient returned to this city, and it was then that he sought his family physician who in turn brought him to my office for an examination of the nasal cavity.

Nothing was found indicative of a bleeding point, nor of any erosion. There was a slight vegetative formation high up in the region of the superior turbinated body which resembled a cauliflower or coral section more than a polypus or any reduplication in that region. I did not venture to probe into this, but did carefully manipulate it with a blunt instrument. It was a small growth extending downward about an eighth of an inch and measuring about a quarter of an inch across its base, reminding one of a small wart, excepting for its rough outline. I came to the conclusion from my manipulation of this growth that it was neither the cause nor the seat of the hemorrhage, and advised doing nothing. Two months later I was called during the night to attend the patient. His family physician had been called at noon the day before to attend another nasal hemor-

rhage which began during a quiet walk from his train to his home. From noon until night and night until morning everything was tried, styptics, ice, heat, cautery, adrenalin, compression, plugging the nares, etc., but all without avail until in his worn out, faint condition nature stepped in and ruled us out, as she has often done before. Many times during our prolonged visit we believed we had the bleeding checked, only to be disappointed with renewed activity on the part of the hemorrhage. During the bleeding I was able to obtain a good view of the small growth heretofore alluded to and satisfied myself that it was not responsible.

Another examination later disclosed nothing. After a week's rest he resumed his usual occupation.

CASE II.—Hereditary Hemophilia.—Male, white, age 55; farmer and wine grower; tall, broad shouldered, stalwart man, with a magnificent physique, a man of heroic proportions. He would have been the last to be suspected as a hemophilia. Family history revealed the following: Father full blooded, red faced, never known to have prolonged bleeding from any source.

Mother bled profusely from the very slightest abrasion, and there was ecchymosis from the merest semblance of a bruise. External bleeding always lasted for hours. The mother was very light complexioned, was a woman of average proportion, but with unusually large, thick legs, which were often swollen and painful about the knee. Patient knew nothing about her menses.

One brother died at the age of 42 from some affection of the stomach. He was not a bleeder. One sister is still living, unmarried, at 60 years of age. Each menstrual flow put her to bed for several days, during which time she lost as much blood as four or five women together should lose. Her last period was about nine years ago when she was 51 years old. At that time she lost about twice as much blood as she ordinarily passed, and was confined to the bed for twelve days. With this flow her periods ceased altogether. She was not subject to excessive bleeding from traumatism.

The patient himself gave a history of prolonged and profuse bleeding from the slightest cause, though no spontaneous bleeding ever occurred. He was referred to me for a throat affection. There were small diseased tonsils on either side, with deep crypts into which food was pressed in swallowing. One of these crypts opened well up and led downward and outward into a tonsillar fossa. Into these crypts the tonsillar secretion together with the injected food was wont to rapidly

decompose with its subsequent irritation. The patient had tolerated the condition until he wanted something radical done. I removed the tonsil from the left side with a late pattern of curved scissors, and at once removed the opposite one, notwithstanding what I considered a profuse hemorrhage from the first tonsil. Oozing continued from both for a time, but finally I succeeded in checking it from tonsil No. 1. Of the numerous things I tried I cannot say which had anything to do with stopping the hemorrhage. It was not so however with tonsil No. 2. It bled from 9:30 in the morning until after 2 in the afternoon when my robust patient was practically exsanguinated. Compression, styptics, adrenalin chloride, ice packing inside and out, peroxide gargling, the cautery, ergot; again compression, etc., trying each one of them again and again until after five hours rapid bleeding it ceased while I was using compression. In a hopeful spirit I even clamped on artery forceps until I had the field well covered with them, though there was no spurting at any time.

It is difficult to use compression effectively in a throat from which the blood must need be expectorated almost constantly, if in an upright position. The interruption occasioned by it interfering with perfect adaptation of the pledget or hemostat used. The prone position will obviate part of this interference, allowing the escaping blood to flow from the mouth. There fortunately was no secondary hemorrhage, and I believe secondary hemorrhage after operations on hemophilia practically never occurs.

The recovery from the operation, including loss of blood, was rapid, there being no untoward symptoms, while the throat assumed its normal condition in the average length of time after tonsillectomy.

WERE there no other use for phytolaccin it would deserve a place with us for its unequaled power over mammary engorgement.

AN IRREPARABLE LOSS.—The burning of the medical hall of the University of Pennsylvania caused the almost complete loss of one of the most valuable anatomic collections in the world.

WANT CLEAN CARS.—The State Medical Board of Iowa has started a crusade against insanitary passenger cars. They are going to insist on a thorough cleansing of the coaches at the terminus of each trip.

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EDITORIAL

THE meeting of the Mississippi Valley Medical Association is near at hand, and the physicians of Indianapolis propose to give the association a warm reception when it meets there October 10, 11 and 12. The preliminary programme, as announced by Secretary Tuley, is an excellent one and covers the newer thoughts on medicine and surgery. This fact, too, is illustrated in the addresses to be delivered before the association. Dr. Arthur R. Edwards, of Chicago, Professor of Practice of Medicine, Northwestern University, who in the address on Medicine will discuss "Certain Phases of Uremia; Their Diagnosis and Treatment;" and Dr. W. D. Haggard, of Nashville, will discuss "The Present Status of Surgery of the Stomach." The Mississippi Valley Medical Association is in its efficiency and membership next the American Medical Association. It is essentially a working society, and one that for many years has occupied a conspicuous and useful field here in the West. We believe every physician, especially the young men, should seek membership in this association, attend the meetings regularly and be benefited by this interchange of thought, profit by the friendships made, and be thoroughly energetic workers in progressive medicine. F.P.N.

The Mississippi Valley Medical Association.

DR. WILL RININGER died at his home in St. Louis, on August 22, from burns caused by an explosion of benzine while working in his laboratory. Dr. Rininger was graduated from the Marion-Sims College of Medicine in 1889, and at the time of his death was assistant to the chair of nervous diseases in this institution. He was 32 years of age.