

which he applied it, either before to prevent or afterward to give relief, he was successful. I think it is a wonderful discovery, and I am sure that if the sea-traveling public could have the privilege of having the remedy at hand, it would make countless thousands happy, and will be an assurance to those who do not travel at sea because of seasickness, that would enable them to enjoy life on the ocean wave without the old time periods of travail and despondency. I sincerely hope that the environments of the service will not prevent you from placing this remedy on the market, and I am sure that a grateful public will rise to bless you every time they have occasion to travel on the high seas.

Extract of letter of Dr. T. G. Holmes, transport surgeon, U. S. A. T. *Grant*:

After the second day I used it for six passengers, with prompt relief in every case; two only had any subsequent nausea, which yielded to a repeated hypo. Among the soldiers I used it for ten, with equally prompt and satisfactory effect and no subsequent nausea.

Extract from letter of Captain (now Lieutenant-Colonel) E. T. Fremont:

I write just a line to thank you greatly for the benefit to me of your remedy for seasickness. I only took two doses (and for me the atropin as put up was halved, as the whole tablet made me sleep too much and made my throat tremendously dry) and thereafter I steadily improved. No matter how rough, I was not again affected.

Extract from letter of Mrs. M. S. R.:

I can thank you most sincerely and gratefully for the remedy for seasickness. We had a most trying and stormy passage, and by the daily use of the small pills I managed to stay on deck every day. I am such a miserable sailor that I feel sure nothing would absolutely cure me, but as I am usually in bed, deathly ill, from San Francisco here, and not able to keep any food down, I am sure you can see how much good you did me when I was only actively ill twice and able to stay on deck all the time.

Extract from letter of Capt. I. T. Jenks, 24th Infantry:

Your prescription worked marvels with me. We had a rough trip and I did not miss a meal.

I have many more letters of the same import, but these ought to suffice.

I notice in the daily press in a telegram from Lisbon, February 10, the following:

"The Anti-seasickness League will hold a meeting here in April, when one hundred physicians will charter a steamship and go out to sea to try personally the medicines which have been advanced as preventives of seasickness. Six hundred invitations have been sent to members of the medical profession, and out of the acceptances one hundred will be chosen to go on the voyage."

This appears to be an excellent opportunity of bringing my investigations to the notice of the profession, and I hope that this paper will be read in full and be given due consideration.

I conclude with an observation made again lately that the success or failure of the remedy greatly depends on the patient himself. This happened in the case of an officer to whom I gave a number of doses of tablets containing the atropin and strychnin. He was undergoing a voyage on a small coastline steamer. The weather was very rough and the vessel rolled and pitched greatly. He took the medicine before leaving and was not affected by the sea. On his return, vessel and weather being similar, but the stomach full, he was not benefited, as probably the remedy did not have time to be absorbed, and he suffered greatly for several days.

## JOINT MANIFESTATIONS IN HEMOPHILIA.\*

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CHICAGO.

Fifty years ago clinicians clearly recognized the frequency of joint lesions in hemophiliacs, but were unable to agree on the pathology of these lesions. Elsässer considered the condition to be merely coincident arthritis due to gout, and Lange, in 1851, supported this view. As late as 1870 we find Grandidier insisting on a rheumatic or gouty diathesis as the sole factor, although Volkmann, in 1868, had clearly shown that hemorrhages into the joints occurred frequently and with little traumatic cause in bleeders. Wickham Legg, about 1870, wrote an able monograph with some mention of the arthritis, and ten years later concluded correctly as to the etiology.

Reinert and Lossen made strong pleas for the hemorrhagic nature of the joint lesions, but as late as 1892 we find no less an authority than William Osler apparently unwilling to hazard a theory, although Poncet, Charcot and Redfern had given good descriptions of the changes in the synovial surfaces. It was not until the able and convincing paper of König was published, in 1892, that the profession at large became awakened to the true cause of the arthritis.

It is interesting to read that the greatest authority in the world on tuberculosis of joints should have operated on two hemophilic knees in one year under the impression that they were tuberculous. In 1896 an Omaha surgeon reported another case, and I have heard of two others which I have been unable to find. All these operations resulted fatally from slow oozing some days after the operations, in spite of every form of treatment then recognized as advisable. All these cases so strongly resembled tuberculosis that a consideration of the differential diagnosis assumes great importance to the operating surgeon.

Although any joint may be affected, the vast majority of the hemorrhages occur in the knee, and, of course, the male sex is far more liable to suffer than the female. I believe that a careful and painstaking examination will reveal the true condition in practically every case if the possibility of hemophilia be borne in mind. The diagnosis in the early or acute stage presents several difficulties. It is probable that many cases go unrecognized, and, in fact, in a case of effusion into the knee joint following a moderately severe trauma, with no rise in temperature and no great pain, it may be impossible to make the correct diagnosis without aspiration of some of the fluid. There seems to be a well-recognized disinclination on the part of many hemophiliacs to admit the fact that they are bleeders, and several observers state that the diathesis is even strenuously denied by the patients.

### PATHOLOGY.

I shall not attempt to review the literature of hemophilia in general nor to theorize as to its essential cause. It is now clearly recognized that the joint manifestations are due to an intracapsular hemorrhage. Rheumatism and gout play no part whatever, although there is perhaps no reason why they may not coexist. The hemorrhage may occur without any appreciable trauma, though more often a slight fall or blow is the exciting

\* Read before Chicago Pediatric Society.

cause. The authors all agree that at least one such attack, even if severe, may be recovered from with perfect restoration of joint function, but that, if repeated, some disturbance of mobility may remain permanently. The pathologic findings may be conveniently divided into different stages. König's classification is satisfactory if slightly modified.

*First Stage.*—The first stage is simply the presence of free fluid blood in the joint. It is rapidly absorbed under proper treatment, and leaves no traces except a moderate brownish or yellowish discoloration of the capsule and synovial surfaces, due to the retention of blood pigment. The articular cartilage on the ends of the bones does not lose its gloss or whiteness, and joint function becomes normal. Many patients after an attack of this kind have no recurrences in any individual joint, though several articulations may suffer in succession. These cases, therefore, present little of interest to the orthopedic surgeon and are usually treated successfully by the general practitioner as acute articular rheumatism.

*Second Stage.*—With repeated hemorrhages in a single joint, distinct pathologic changes take place which are very remarkable. The capsule becomes thickened and succulent and much darkened. A fibrinous deposit appears all over the capsule and the synovial folds. Delicate, brownish, pigmented tufts form on these areas, and later filiform, slender threads grow from them and float swayingly about in the blood serum, like seaweed. The articular cartilage itself is invaded by brownish patches and tufts, and begins to degenerate, and curious characteristic defects are left, shallow, irregular, like the outlines on a map. The rest of the cartilage becomes brownish and loses its gloss.

*Third Stage.*—Later comes the third stage, with adhesion of these little tufts to the opposite articular cartilage, causing a more or less complete ankylosis. The fluid in the joint is absorbed, and only the thickening of the synovial surfaces, and the ankylosis remains, with usually a marked flexion of the joint. There is never any tendency to abscess or to sinus formation.

#### CLINICAL MANIFESTATIONS.

The clinical picture in the first stage may be confusing. Some cases closely resemble rheumatism with pain, swelling and joint effusion. This type usually follows trauma and when less severe may be diagnosed as simple synovitis; while other cases come on spontaneously with a painless and fluctuating swelling of the joint and little or no interference with function. Either variety progresses rapidly to perfect cure unless followed by exacerbations due to repeated hemorrhages. In the second stage we see what is often a perfect picture of a tuberculous joint in a subacute condition, thickened capsule, effusion, limitation of motion, beginning flexion-deformity and spasm of hamstring muscles. This was the condition of the joints operated on by König. Atrophy of the limb is pronounced and the differential diagnosis is most difficult. In the third stage there may be a complete bony ankylosis, as in a case reported by Summers, with atrophy and marked flexion, or perhaps a great limitation of motion, with the patella fastened to the femur by small areas of bony adhesions arising in places where the cartilage has been destroyed.

It is stated that a rise of temperature may occur during acute attacks of hemarthrosis, to as high as 102 F., but it is rare, and rapidly subsides, becoming normal in a few days.

#### DIAGNOSIS.

*First Stage.*—The conditions most closely resembling the first stage of hemarthrosis are acute synovitis and intermittent hydrops. In acute synovitis there is always a history of a fairly severe injury, the pain and discomfort are generally greater, and a local point of distinct tenderness can be made out at the site of the injury. The pain on motion and the functional disability are greater than in hemarthrosis and the effusion disappears more slowly. A careful aspiration of the fluid, under rigid asepsis, and using a needle of a very small caliber, would probably be harmless in any case and would afford valuable information. It is practically painless, if skillfully done, and I recommend it as a routine procedure in doubtful cases.

Intermittent hydrops, or hydrarthrosis, is a very rare disease, only about 70 cases being reported in the literature. It is characterized by a sudden painless, or nearly painless, effusion into the joint, a rapid disappearance of this effusion, and a complete recovery, followed by a series of precisely similar attacks at remarkably regular intervals, this periodicity, the mildness of the attack, and the absence of any traumatism being the chief characteristics. In a few cases, the pain has been a more prominent feature. Nothing is known of the etiology, and aspirations have shown usually a clear sterile fluid.

The various forms of infectious arthritis, such as gonorrheal, typhoid, pneumococcus, scarlatinal, and so forth, as well as the ordinary pus-germ infections, are much more painful and persistent than hemarthrosis, are attended with greater constitutional disturbance, and have the antecedent disease as a suggestive factor in the diagnosis. Acute articular rheumatism is rarely confined to a single joint, and has the same general diagnostic differences as the other infectious arthritides.

A true hemarthrosis is unquestionably the cause of the joint symptoms occurring in the so-called hemorrhagic diseases, such as Henoch's purpura, purpura rheumatica (Schoenlein's disease), purpura hemorrhagica, and scurvy. In these diseases the petechial hemorrhages into the skin and mucous membranes will at once suggest the probability of a similar involvement of the synovial tissues.

*Second Stage.*—In the second stage, the thickened capsule, the limited motion, and the beginning flexion suggest tuberculosis, but careful examination will show that the spastic contraction of the hamstrings is not a true reflex spasticity, but can be voluntarily relaxed. Also, there is no free fluid in hemophilic joints after the hemorrhage has been absorbed, and no individual points of tenderness can be found. Nearly all, if not all, tuberculous joints show a permanent increase in both local and bodily temperature, the latter usually reaching 99 or 99.5 degrees in the afternoon. The general onward march of the lameness and swelling, without any very sudden exacerbations or remissions, together with perhaps a cold abscess or night cries, would point to tuberculosis. Some of the so-called chronic rheumatoid diseases, especially arthritis deformans, bear a certain resemblance to hemarthrosis, but the characteristic grating, the slow onset, the involvement of several joints, and the presence of irregular bony or cartilaginous hypertrophies at the edges of the joints would exclude hemarthrosis.

*Third Stage.*—In the third stage the clinical picture may be exactly that of an old tuberculous joint with complete ankylosis and without evidence of suppuration. It may be absolutely impossible to make a diag-

nosis without the aid of a complete and intelligible history of the case. The flexion of the hemophilic knee is usually not so exaggerated as that of an untreated tuberculous knee, and there is less backward displacement of the head of the tibia. Before considering operation in any old ankylosed joint where the history and examination do not positively rule out hemophilia, a test of the coagulability of the blood should be made.

#### TREATMENT.

The treatment in the primary stage should be such as will promote the absorption of the effused blood. I recommend aspiration with a fine needle, believing that it is of great importance to prevent, so far as possible, the deposit of fibrin on the joint surfaces, and that it is hardly possible for a fatal hemorrhage to occur through the wound of a small needle. After the blood has been removed, a few cubic centimeters of adrenalin solution should be injected, and a pressure bandage applied for five or six hours. The absorption of the blood, in case aspiration be deemed inadvisable, can be hastened by free use of the affected joint. It should not be put up in a plaster cast or in any other kind of fixation, after the first day, because any aseptic fluid in any joint will be absorbed more quickly under motion and massage than under fixation. This has been well demonstrated by Hosmer, Henrotin, and others in their treatment of acute synovitis. Constitutional treatment by such drugs as gelatin, adrenal extracts and calcium chlorid offers some security against future attacks, and should be tried faithfully. It does not show any great uniformity in results.

In the later stages, when there is a tendency to flexion, it is wise to apply traction until the joint is straightened, and then to use a splint or cast until the tendency has disappeared. Ankylosis in flexion might be corrected by the Goldthwait genuclast, by forcible manual redressment, or even by osteoclasia, followed by immobilization until ankylosis in good position has occurred. Any cutting operation should be shunned like the plague.

100 State Street.

### Special Article

## THE PHARMACOPEIA AND THE PHYSICIAN.

### SUBSTANCES USED AS VEHICLES.

#### CHAPTER XXVI.

The great majority of physicians pay all too little attention to the art of rendering their prescriptions pleasing alike to the eye and to the palate. Even in medical schools, if the matter is considered at all, it is usually deemed sufficient to instruct the student to give the mixture a sweet taste, by the addition of syrup, or a distinctive aroma by the addition of one or the other of the official medicated waters, with little regard for individual taste or the nature of the mixture. In the matter of appearance it is commonly considered quite sufficient to avoid the inky mixtures produced by the addition of iron compounds to preparations containing tannin, or tannin-like substances.

From the point of view of the patient it is safe to say that the appearance of a mixture is often of even greater importance than the taste, not alone in so far as it concerns the individual preference of the patient, but even to the extent of affecting the absorption and the subsequent assimilation of the medicine, since we know that the digestive secretions are stimulated by tempting looking substances and are inhibited by those which appear disgusting. In the case of women and children the subjects of flavoring and coloring are of much more importance than with men.

While the average physician will, no doubt, rightly consider

that this subject does not deserve very extensive study on his part, he must admit that the observance of a few easily acquired rules may be well worth remembering.

Unlike the question of ready-made formulas for a great variety of conditions demanding individual consideration, there is no reason why flavoring and coloring should not be reduced to the very simplest forms and used as a routine whenever the mixture admits of it.

Despite the pernicious activity of manufacturers of ready-made pills and tablets in flooding the market with all possible substitutes for tinctures, fluid extracts and solutions, it has been amply demonstrated that these solid forms of medicine can not compare in efficiency or in usefulness with the equivalent preparations given in liquid form. We will, therefore, confine ourselves entirely to the discussion of these liquid forms of medicine and to enumerate and point out the uses of the several preparations that are available as solvents, or as vehicles, for the administration of otherwise solid substances.

On a subject that is so far-reaching and varied as this must be, it will, of course, be evident that the several matters can not be taken up in detail, but must of necessity be more in the nature of suggestions for observation and study. With the wealth of material that is available, by the use of the official aromatics and diluents, it should be a comparatively easy matter for a physician to become thoroughly familiar with the properties and possible uses of at least several of these preparations and by judicious combination to produce not alone a variety of mixtures, but, also, to impart to them an individuality in which he may well take pride.

Many of the comparatively tasteless substances merely require the addition of some mildly aromatic solvent or diluent, such as the aromatic medicated waters. Substances that are more acrid, bitter or saline in taste may be masked by the addition of a small amount of syrup to the aromatic, or by the addition of a preparation containing glycyrrhizin, like the now official elixir adjuvans. Nauseous bitters are best masked with strong aromatics and syrup. The simple but persistent bitters, such as quinin and strychnin, are agreeably modified by such an aromatic as tincture of sweet orange peel, wine and sufficient syrup to suggest sweetness. As an example of such a preparation we may mention the bitter wine of iron, which will be appreciated if one will but taste this really elegant preparation.

#### Medicated Waters.

The most simple and, therefore, the most readily available of the official diluents or vehicles are the aromatic, medicated waters. They are particularly well adapted for dissolving such comparatively mild tasting substances as potassium citrate, sodium benzoate, sodium salicylate, morphin sulphate and antipyrin.

One of the most pleasant of these preparations is:

AQUA AMYGDALÆ AMARÆ.—U. S.—Bitter almond water. This contains about 0.1 per cent. of oil of bitter almond, and appears to be particularly adapted for use with sedative expectorants such as codein sulphate.

Average dose: 4 c.c. (1 fluidram).

The following are particularly well adapted for use with children:

AQUA ANISI.—U. S.—Anise water, and

AQUA FÆNICULI.—U. S.—Fennel water. They contain about 0.2 per cent. of the respective volatile oils and have long been popular as correctives or diluents for medicines such as fever mixtures and mild anti-diarrhea mixtures, designed primarily for children.

Average dose of either of the above: 16 c.c. (4 fluidrams).

Another aromatic water that has met with considerable use is:

AQUA CINNAMOMI.—U. S.—Cinnamon water also represents approximately 0.2 per cent. of the volatile oil and, as a flavor, is sometimes preferred.

Average dose: 16 c.c. (4 fluidrams).

By far the most popular of the aromatic waters are:

AQUÆ MENTHÆ PIPERITÆ.—U. S.—Peppermint water, and  
AQUÆ MENTHÆ VIRIDIS.—U. S.—Spearmint water. These, like the preceding, are simple solutions of volatile oils in water