obtained. Nasse has found that section of nerves supplying bones has caused a diminution of all the osseous constituents with an increase of fat. These changes are similar to those occurring in the case here described, with the exception of the formation of the osteophytic processes. These formations are, of course, mainly the separated bony processes of the joints, but some are entirely new productions (see Fig. 2).

I have thought that in cases of nervous degenerative disease the normal phosphatic excretions are increased in quantity, and are prevented from leaving the system by the cystic disease so commonly accompanying these affections. These phosphates may consequently be reabsorbed from the urinary organs, and deposited as phosphates of lime or magnesia in the fatty, softened, and degenerating tissues affected by trophic disturbances. This explanation is, however, unsatisfactory when applied to those cases in which the osseous lesions occur before the vesical complications. In these cases there appears to be less bony formation than in those cases where Charcot's disease appears as a late phenomenon, the bones being absorbed and softened without the formation of osteophytes.

CHLORALAMIDE AS A HYPNOTIC.

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In his exhaustive account¹ of many of the new hypnotics, Professor Leech says of chloralamide that the observations upon it are so far few in number. I have recently given it to twenty patients suffering from various illnesses, in all of whom insomnia was a troublesome symptom. Brief notes are appended. It will be seen that the drug produced comfortable sleep in all the patients except two; one of these was suffering from delirium connected with cerebral hæmorrhage, and the other was admitted with rheumatic fever complicated by delirium tremens and salicylic poisoning. Both these patients died shortly after admission. It is noteworthy that some of the other patients were suffering from extremely painful diseases, and yet chloralamide produced sleep; thus a woman who had a thoracic aneurysm preferred it to morphine, and another patient who had carcinoma of the stomach also slept better with chloralamide than with morphine. The patient with carcinoma of the liver suffered intense pain, yet she dozed comfortably after chloralamide. The man suffering from cerebral softening who was quieted by the drug is also a striking case. Probably the house-physicians, sisters, and nurses are the best judges of hypnotics, as they see the patients frequently during the night. They all tell me that those who take chloralamide sleep well and comfortably after it, and the sisters of the three wards in which I have used it tell me that the patients sleep better after chloralamide than after any of the hypnotics which have been introduced during the last few years. My own experience, and what the patients themselves tell me certainly agree with this. In none of the twenty patients to whom I have given it—and many of them have taken several doses—have any effects followed that can be looked upon as contra-indications to its use. Never have I observed any depressing results, nor has headache followed its use. The time which elapses between its administration and the commencement of sleep varies between a quarter of an hour and two or three hours. If it is given in the evening, when once asleep the patient usually sleeps quietly till morning. Some writers have stated that occasionally after a dose in the evening the patient does not go to sleep till the next morning, and that he remains asleep all the day. This was so with one of my patients; but it must be remembered that, as the drug is feebly soluble in water—20 grains take five hours to dissolve in 2 ounces of water—it is often given as a powder with some milk. It was administered in this way to my patient who slept the next day, and I should think that some of these cases of delayed action were due to delayed absorption. Now I always prescribe it with spirit; 20 grains will dissolve in 1 drachm of rectified spirit in fifteen minutes, and water may be added to this solution without reprecipitating the drug. A good way of giving it is to tell the patient to dissolve it in a little brandy, add water to his liking, and drink it shortly before going to bed. If given in milk, not only is it insoluble, but it is difficult to swallow, for it sticks to the sides and bottom of the glass. The taste is slightly bitter, but by no means

disagreeable. It should never be prescribed with alkalies, for they decompose it, nor should hot water be mixed with it, for it decomposes at 148° F. For an adult, 20 to 60 grains—the exact amount depending upon the cause of the insomnia—is the dose; usually 30 grains will suffice. It has the advantage over sulphonal that it is only half the price, and it has the great advantage over paraldehyde that it has no nasty smell or taste, nor is it difficult to dissolve.

The few cases which have been published quite bear out the cases recorded here. It would seem that in chloralamide we have a safe hypnotic, which hardly ever has any depressing effects, which does not produce indigestion, and very rarely gives rise to any unpleasant results. We do not of course yet know what harm may result from its prolonged use. References to those authors who have studied the chemistry and physiological action of the drug will be found recorded by Leech, Paterson,² and in a leading article in the *Therapeutic Gazette* for September, 1889. Rabow³ considers 45 grains of chloralamide to be equivalent to 30 grains of chloral. Chloralamide has been used successfully as an enema by Peiper.⁴

CASE I.—Typhoid. A girl aged 4½. Very irritable and fretful, often keeps the other patients awake by her crying; 5 or 10 gr. of chloralamide always sent her to sleep a quarter of an hour after taking it. She slept quietly for many hours. She took it frequently for a fortnight.

CASE II.—Sarcoma of last rib, growing extensively into the tissues and organs around. A middle-aged man. He suffered intense pain, but 30 or 40 gr. of chloralamide always gave him sleep, often for the whole night. It relieved him as much as, or even more than, morphine.

CASE III.—Cerebral hæmorrhage with noisy delirium. An adult man. 30 gr. of chloralamide did not relieve the delirium.

CASE IV.—Thoracic aneurysm; a woman. She suffered great pain. Before the introduction of chloralamide she was treated with injections of morphine. For the last month of her life she had many doses of 30 gr. or 40 gr. of chloralamide. She always slept well after it, and she said she preferred it to morphine.

CASE V.—Subacute nephritis. A woman aged 27. Slept well and comfortably after a dose of 30 gr.

CASE VI.—Mitral regurgitation, pericarditis. A boy aged 12. Slept all night after a dose of 5 gr.

CASE VII.—Mitral regurgitation and albuminuria. A man aged 40. 30 gr. made him sleep well and comfortably.

CASE VIII.—Extreme ascites, probably due to cirrhosis. An elderly man much troubled with insomnia. 50 gr. made him sleep well and comfortably.

CASE IX.—Carcinoma of the liver. A woman aged 38. She suffered extreme pain, but 30 gr. of chloralamide caused her to sleep well and doze in comfort.

CASE X.—Erysipelas. A middle-aged woman. 30 gr. always made her sleep comfortably.

CASE XI.—Rheumatic fever. A boy aged 10. 15 gr. every four hours gave him quiet sleep, although he suffered much pain.

CASE XII.—Rheumatic fever, delirium tremens, salicylate poisoning. A man aged 40; died a few hours after admission. 3i of chloralamide had no effect upon him.

CASE XIII.—Brachial monoplegia, probably due to embolism and cerebral softening. An old man, who was very noisy and delirious. 30 gr. always quieted him and produced sleep lasting some hours.

CASE XIV.—Mitral disease. A middle-aged woman. 30 gr. always produced sleep.

CASE XV.—Carcinoma of the pylorus. A woman aged 56. 30 gr. always produced sleep better than morphine.

CASE XVI.—Chronic eczema. A man aged 40. 30 gr. caused comfortable sleep.

CASE XVII.—Mitral regurgitation and floating kidney. A woman aged 50. 30 gr. produced sleep, although the floating kidney caused much pain.

CASE XVIII.—Spastic paraplegia. A woman aged 56. 20 gr. caused comfortable sleep.

CASE XIX.—Phthisis, aortic disease, saturnine paralysis. A man aged 65. 20 gr. always produced sleep, but it took twelve hours to act, so that if the medicine were given in the evening the patient did not sleep during the night, but he slept all the next day.

CASE XX.—Mitral regurgitation. An adult man. A severe case. 30 gr. produced comfortable sleep.

² *Lancet*, October 26th, 1889.

³ *Centralblatt für Nervenheilkunde*, August 1st, 1889.

⁴ *Deutsch. med. Woch.*, August 8th, 1889.