culty with regard to the latter drug, I have not hesitated to bring forward my experience of duboisin in this preliminary notice, in order to recommend its use most strongly to the profession. I purpose shortly to publish a fuller account of the action of duboisin both in affections of the accommodation and refraction, and in other diseases of the eye. A four-grain solution of duboisin produces a much more rapid dilatation of the pupil and powerful action on the muscle of accommodation than a solution of atropine of the same strength. The pupil in a normal eye becomes dilated *ad maximum* in ten to twenty minutes, the accommodation (if there is no spasm of the muscle) paralysed in twenty to forty minutes, this lasting for three or four days.

In order to illustrate the difference in the action of atropine and duboisin, I will very briefly cite the following case, reserving others for a future communication.

Miss A—— consulted me on Oct. 12th, 1878, for the right eye. She had noticed that she had been very short-sighted with this eye since the previous June, the other being quite normal; probably, however, this supposed myopia had existed much longer, only she had never before tried each eye separately. On examination I found that in reading Jaeger 1 the far point lay at 7 in. At a distance she could not decipher $\frac{20}{120}$. Convex glasses made the sight worse, but concave 14 enabled her to read $\frac{20}{20}$. I therefore at once suspected spasm of the ciliary muscle, and found this verified by the ophthalmoscope, the retinal vessels (when the patient looked vacantly before her) moving distinctly in the same direction as my head. The real degree of hypermetropia was about $\frac{1}{10}$. The left eye was also hypermetropic, but read $\frac{20}{20}$; the manifest hypermetropia = $\frac{1}{48}$, the latent about $\frac{1}{14}$. Curiously enough, she had never had any asthenopic symptoms. It is also very rare to have both eyes hypermetropic, and the spasm confined entirely to the one eye. I prescribed atropine (four grains to one ounce) four times daily to right eye, and complete rest of both eyes.—Nov. 1st: Concave 30 enabled right eye to see $\frac{20}{20}$. To continue atropine.—Nov. 18th: Concave 48 sufficed to render V = $\frac{20}{20}$, but for the last four days the eye had become very irritable, watery, and painful, after every instillation of atropine; had therefore to be desisted from. In five weeks' use (Oct. 12th to Nov. 18th) the apparent myopia had only been reduced from $\frac{1}{14}$ to $\frac{1}{48}$. I may mention that in testing the sight we must always be careful to make the patient look through a small stenopaic hole, so as to obviate the confusion produced by circles of diffusion on the retina from the widely-dilated pupil. The symptoms of irritation having quite passed away, I applied on Dec. 14th a solution of duboisin (four grains to one ounce), which Messrs. Bell and Co., of Oxford-street, had obtained for me from M. Petit (Pharmacie Meilhac, Paris), at 11.30 A.M. Before its use I tried the right eye again, and found that the spasm was as great as ever; concave 14 being required to enable the patient to see $\frac{20}{20}$. At 2 P.M. (when the patient called again) the pupil was very widely dilated, and the spasm had already yielded somewhat, for with -18 she saw $\frac{20}{20}$. In order to test the relative effect of the atropine and duboisin, the latter (four grains to one ounce) was used *twice* daily, whereas the atropine had been used *four* times. Dec. 16th: $-30\,\frac{20}{20}$. 19th: $-50\,\frac{20}{20}$; without a concave lens, $\frac{20}{30}$. 28th: Without any concave lens, $\frac{20}{20}$. Jan. 4th: $\frac{20}{20}$; with convex 48 letters of $\frac{20}{20}$ (now the hypermetropia began to become evident). 13th: $+36\,\frac{20}{20}$. 20th: $+24\,\frac{20}{20}$; without + glass, $\frac{20}{30}$. The patient was now ordered to use the duboisin four times daily. Jan. 30th: $+18\,\frac{20}{20}$; without +lens, $\frac{20}{50}$. But within the last two or three days the duboisin had begun to set up slight conjunctival irritation, and is therefore to be desisted from, but it passed off much more rapidly than that due to atropine. The patient is to wear +16 for reading with both eyes, which she does with comfort. I have not ordered at present + glasses for distance, as I want to watch if the spasm returns. As soon as this is the case, I should order +16 for the right eye for distance and reading, to be increased if not powerful enough; and a weaker convex lens for the left for distance, the strength of which is to be gradually increased until, perhaps, the whole of the latent hypermetropia is corrected.

In this case we see that a solution of duboisin, of the same strength as the atropine, but used only half as frequently, in five weeks (Dec. 14th to Jan. 20th) not only cured the myopia, but brought out the latent hypermetropia to $\frac{1}{24}$; whereas in the same time (Oct. 12th to Nov. 18th) atropine used twice as often had only slightly affected the spasm of the muscle, reducing the apparent myopia from $\frac{1}{14}$ to $\frac{1}{48}$. In similar cases I should always order the duboisin (four grains to one ounce) to be applied four times a day, for very probably it would cure the spasm before any symptoms of irritation are produced. With regard to this, I may mention an interesting fact. A gentleman consulted me on Jan. 22nd, 1879, with a vascular ulcer of cornea, for which he had just been treated in Berlin. On his return a relapse occurred, and I prescribed atropine, which soothed the eye for three or four days, but then set up considerable conjunctival irritation. On inquiry, I found that latterly it had done the same in Berlin. I then prescribed duboisin with the best possible results; the irritation rapidly passed away, and the patient expressed himself greatly relieved by its use. I have found the same in other cases of corneitis accompanied by pain and much redness; also in cases of iritis, as the duboisin acts more rapidly and powerfully in dilating the pupil and tearing through any existing posterior synechiæ. Whether or not it may awaken glaucomatous symptoms (as atropine undoubtedly does) in eyes which are predisposed to this disease, or have already shown premonitory symptoms, I have not at present had any opportunity of determining. In cases of spasm of the ciliary muscle, I should strongly urge the substitution of a strong solution of duboisin (one grain to two drachms four times daily) for atropine, as its effect is so much more rapidly powerful, and as atropine so frequently sets up irritation even before it has had much effect on the spasm, and much valuable time is lost, and our end often not even gained.

NITRO-GLYCERINE AS A REMEDY FOR ANGINA PECTORIS.

BY WILLIAM MURRELL, M.R.C.P.,
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(Concluded from p. 152.)

THE second case was that of Mrs. H. S——, aged fifty-three, who first came under observation in January, 1878. She is a married woman and the mother of eight children. She complained of a "strange sensation" in her chest, over her heart, coming on in fits several times a day. It was not a pain, she said, at least not an ordinary pain; it was something more than that—it was "just as if the life were going out of her." The attacks would last only two or three minutes at a time, but she seemed as if she could not get her breath, and they frightened her. She could just say "Oh dear!" or something like that, but nothing more. She would usually put her hand over her heart and press hard, and that seemed to relieve her. She feels quite cold during an attack, and her friends tell her she gets pale in the face. The sensation is referred to a spot corresponding in situation to the point of maximum intensity of the heart's beat. It always keeps in the same place, and never flies to the shoulders or runs down the arms. In the intervals of the seizures she is perfectly well. There is no flatulence, nausea, vomiting, numbness in the arms, or vertigo, and the attacks are not followed by any discharge of urine. Patient never has an attack when quiet. The slightest exertion will bring one on; going upstairs will always do so, and even if she goes up very slowly she is sure to get an attack. She does not often get them on level ground, unless walking fast, and then she gets them. Going up-hill brings them on much more readily than walking on level ground. She can always tell, she says, when the ground is rising; she knows directly. Shaking up a bed will bring on the pain at once. She dare not do it now, and that is a great bother to her. Any little exertion is enough, as, for example, putting on her jacket or reaching up to the clothes-line. Stooping down to lift anything brings them on, but not simply stooping down, as in pulling on her boots. Leaning back is certain to bring them on; the least excitement will do so—in fact, anything that worries or upsets

her. They are not in any way influenced by food. Cold feet will not bring them on, nor will a hot room. These attacks commenced at the beginning of last summer (1877), but were not so bad as they are now. They worried her a good deal, lasted on and off for two or three months, and then went away. She cannot tell at all what brought them on. They returned on the following November, and have been getting worse ever since. Now she usually has seven or eight attacks a day, but the number depends very much on what she has to do. For some time past they have been gradually increasing in frequency, and are now far more readily excited than formerly. Her general health is fairly good. She has had a bad cough every winter for the last eighteen years. What with the cough and the children, she has never been very strong. She has never suffered from gout or anything like it. Patient's father died of gout and bronchitis. He had suffered from gout since he was twenty-one, and had large chalk stones. He was addicted to drink all his life more or less. His father and brother died of asthma. Patient's mother died in confinement, and she has no brothers or sisters. She lost one of her children from bronchitis and another from consumption. None of them ever had fits or St. Vitus's dance. On a physical examination, marked arterial degeneration is noticed. There is slight emphysema. There are no signs of aneurism and none of valvular mischief. Urine normal.

Here, again, little doubt was entertained respecting the diagnosis. It was not a typical case of angina pectoris perhaps, but it assimilated more closely to that type of disease than to any other. There could be no doubt about the reality of the patient's sufferings.

After a preliminary course of camphor-water, the patient commenced taking the nitro-glycerine on Feb. 4th. She was ordered one drop of the one per cent. solution in half an ounce of water every four hours. In three days she reported that the pains had occurred less frequently; that they did not last so long. The pains were much shorter, and "there was a good bit of difference." She complained that the medicine had given her "such a strange sensation." It gave her "a kind of pain inside her head," and brought on a throbbing across her forehead just where the hair begins. After each dose she felt powerless for about ten minutes, and had to sit down, feeling that she could not do anything. The dose was then increased to four minims every four hours, and this gave very marked relief to the anginal symptoms. The pains, she said, were very much better, and a dose of the medicine would always cut them short, almost at once; they were less frequent, less severe, and did not last so long. She was no longer afraid to hurry about the house, and was able to perform many little household duties that had been long neglected. She spoke very positively as to the good the medicine was doing her, but at the same time complained that it affected her most powerfully. The throbbing in her head after the dose was very strong, and lasted nearly twenty minutes; it was accompanied by a darting pain, and she felt cold all over; she had to sit down, and could do nothing as long as it lasted.

The patient continued to improve, and on Feb. 21st she said she had taken a long walk the day before, not only without difficulty, but with pleasure. Under ordinary circumstances the exertion would have brought on an attack, and she would probably have had to return home. The attacks are now experienced only once or twice a day, in spite of her getting about much more; and they are very much slighter than formerly, not lasting half the time. She does not take much notice of them now, and no longer has to stop and put her hand over her heart. Some days she is entirely free from them.

Curiously enough, although the dose of the nitro-glycerine had been gradually increased to ten minims every four hours, the patient complained less of the throbbing in the head. During the following week the dose was increased, first to fifteen and then to twenty minims every four hours. The effect of the larger dose was very marked. She said the medicine made her "feel very bad"; she was afraid of it, for she felt it to her very fingers' ends. She throbbed all over—fingers, toes, and all. It affected her powerfully, and she had to sit down on the bed for nearly three-quarters of an hour after each dose. It caused noises in her ears just like the rushing of water, and made her feel cold all over. Sometimes it produced curious fits of gaping; she went on yawning and yawning, and seemed as if she would never stop. It never made her feel faint, and when it was over she felt quite well again.

The dose of the medicine was now gradually diminished, and on March 7th it was abandoned in favour of general tonics. The patient is still under observation, and, although she has slight attacks occasionally, they give her very little trouble. For the last eight months she has not had a single bad attack of pain.

R. A——, aged sixty-one, a painter's labourer, was first seen on April 11th, 1878. Complains of a pain in the chest, which comes on when he walks. The pain is referred to the mid-sternal region, and is said to cover an area about the size of a teacup. It is a dull, heavy, tight pain. It begins in the chest, and then passes through to between the shoulders. During severe attacks it sometimes runs down the left arm as far as the elbow; it never extends to the lower extremities. It is excited by exertion, and chiefly by walking. It comes on suddenly, and he is obliged to stop and wait till it goes off. He may have to stop for a minute or two, or even longer. It often returns when he starts again. When walking it may come on several times in the course of half an hour, until at last it brings him to a full stop. If he walks fast it will bring it on, and so will going up hill. His ordinary work does not excite it, nor does stooping. He gets it chiefly morning and night, going to and returning from work. Has not noticed that it is more readily induced after meals, and does not think that food influences it in any way. When pain comes on he gets pale, so his friends tell him. Does not feel anxious, and the attacks do not frighten him at all. They are not accompanied by palpitation, but during the attack he feels "very full," "as if he must burst," or "as if his chest wanted moving." Patient has "knocked about a bit in his time," but has been "fairly steady." First he was on a farm, then in the police, then a wheelwright, and now he is a painter's labourer. When in the police he was advised to resign on account of weakness of his chest, but does not think his chest was really affected, for he had no cough, and has always felt well and strong. Is subject to gout, and had his first attack about three years ago. No history of syphilis. Has been a great smoker for the last forty years; used to smoke an ounce or more nearly every night, especially when on night duty, and it was always shag tobacco, and the strongest he could get. He experienced his first attack twelve years ago, when working on the Thames Embankment. It was the same kind of pain as he has now, but it went off in a week or two. A year later he had a return of it, which lasted for a few weeks. Eight years ago a fire broke out, and he ran a mile and a half to fetch the engines. This brought on the attacks again, and he has had them more or less ever since. He has been getting worse during the last year, and especially during the last few months. On a physical examination, it was found that the pulse was irregular both in force and rhythm. There was some arterial degeneration, and a slight arcus senilis was noticed. No organic disease of the heart or lungs could be detected, and there were no signs of aneurism. Patient had a peculiarly anxious look, which was very noticeable. No albumen in the urine.

After a short course of camphor-water, patient was ordered a drop of the one per cent. solution of nitro-glycerine in half an ounce of water, to be taken every four hours. Four days later the patient reported that there had been a great improvement. The attacks were much less frequent, and that morning he had walked to his work without having a single seizure—a thing he had not done before for he could not say how long. The attacks at night, going home, were just as frequent, and he did not think they were less severe when they did come on. He had never taken a dose of the medicine when the attack was on him, so he could not say if it would cut it short. After each dose of the medicine he gets a pain at the back of the head, which comes on in about ten minutes and lasts half an hour. Says it is almost the same kind of pain as he has in his chest—"a heavy, dull pain"; no beating or throbbing; no pain across the forehead or at the top of the head. Sometimes gets a "choky sensation in the throat" after the medicine. A few days later patient called again, and stated that he was steadily improving. At this visit he was given a single dose of two drops of the one per cent. solution on a piece of sugar. It produced slight flushing of the face and a marked increase in the fulness of the arteries. The pulse, which had previously been 98, rapidly rose to 112. The flushing was in a few minutes followed by intense pallor, and patient complained of feeling faint. He had to be supported to the sofa, his pulse was found to be very feeble, and it was a quarter of an hour or

more before he was sufficiently recovered to stand alone. The patient was directed to continue the one-drop dose every four hours, and to take an extra dose when he felt the pain coming on. A week later he said he thought he was nearly well. For four days he had not had a single attack, although he had had a great deal of walking to do. When he felt any indication of the onset of the pain, he took a sip of his medicine, and it was all gone in a moment. He could walk to his work without the slightest difficulty, and even coming home at night gave him no trouble. The other day he walked the best part of a mile in a shower of rain quite briskly, and was none the worse for it. After each dose he experiences a pain at the back of the head and also over the forehead. A week later the dose was increased to two minims every four hours, and this was taken without difficulty. The medicine, he said, did not upset him at all. It had done him a deal of good, and he did not know what he should do without it. The dose was gradually and cautiously increased to eight minims every four hours. This was taken without difficulty, patient remarking that it did not upset him as it used to do. He was quite free from the attacks as long as he continued taking the medicine, but they returned immediately he discontinued it. He still attends at long intervals to report himself, but is practically well.

In the following case, of which an abstract of the notes is given, the administration of nitro-glycerine was attended with success.

L. B——, soap-maker, aged forty-two. Complains of pain in the chest on the left side, constant, but increased by movement, very severe at times, and occasionally so acute as to make him cry out; seems as if it would take his breath away; sometimes occurs between the shoulders as well, and not unfrequently runs down the left arm as far as the elbow. If walking, and the pain comes on, he has to stop, but only for a few seconds, and then goes on again. The pain is increased by stooping down, as in putting on his boots. Any movement, even turning in bed, will bring on the acute pain; but still he is never entirely free from it. He has it more or less all day, and acutely on moving. He has the very greatest difficulty in doing his work. Has been abstemious all his life; a smoker, but not consuming more than half an ounce of tobacco a week. Has had gout thirty times or more during the last twelve years. Has had winter cough for about the same time. Never had these pains until this year. Has been gradually losing flesh for some months past. Physical signs those of emphysema; heart normal; no albumen in the urine. The patient was ordered a gentian-and-soda mixture, and this he took for a fortnight without the slightest benefit. The medicine, he said, did him more harm than good. The local application of belladonna failed to afford relief. He was then given drop doses of the one per cent. nitro-glycerine solution in half an ounce of water four times a day. A week later he reported that he had felt relief on the first day, and had steadily improved ever since. He could stoop down without getting the old attacks, and could walk about almost as well as ever. He had not the slightest difficulty in taking the medicine. He remained under observation for some time longer, but there was no return of the pain.

In conclusion, I have to thank Dr. Ringer for his kindness in having frequently examined these patients, and also for many valuable suggestions.

BEQUESTS ETC., TO MEDICAL CHARITIES.—Mr. Frederick Thomas Mothersill, of Bowdon and Manchester, bequeathed £10,000 to Owens College at Manchester, £5000 to the Children's Hospital at Pendleton, £3000 to the Barnes Convalescent Home at Cheadle, and £1000 to St. Mary's Hospital at Manchester. St. George's Hospital has become entitled to £4900 Three per Cents., under the will of Miss Mary Carlton. The Jessop Hospital for Women, Sheffield, has become entitled to £334, under the will of Mr. Henry Fisher, of Norwood Grange. The Westminster General Dispensary has become entitled to £100 under the will of Mr. John William Allen, of Carlisle-street, Soho. The Rev. William Adams, late rector of Throcking, Herts, bequeathed £500 each to the Leicester Infirmary, the Hertford Infirmary, and Addenbrooke's Hospital at Cambridge. The Infirmary, and the Eye and Ear Hospital, Bradford, Yorkshire, have each received 100 guineas under the will of Mr. Edward Sharp, of Bingley.

A Mirror
OF
HOSPITAL PRACTICE,
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Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Prooemium.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

DIPHTHERITIC PARALYSIS IN A CHILD TERMINATING FATALLY.

(Under the care of Dr. CHEADLE.)

FOR the following interesting notes we are indebted to Dr. R. A. Gibbons, house-surgeon.

A. K——, aged six years and nine months, was admitted on Nov. 26th, 1878. The father died three weeks before of diphtheria, the mother living and healthy. Three other children living, but not strong, and three died when quite young. The patient was the eldest child living; had had no previous illness. Had been ailing between two and three weeks with cough and languor, and had been in bed part of this time, and got worse during the last week. On admission it did not complain of pain anywhere, and had no sore-throat, nor was there any expectoration with the cough. Appetite good; bowels regular. The child was delicate-looking, but moderately well-nourished. There was rhonchus over back and front of chest. Pulse 120, irregular, very small at wrist; impulse of heart slightly thumping; no murmur; cardiac dulness normal. The fauces were red.

The throat was examined daily, although he never complained of it. Nothing was noticed except some congestion, and five days after admission he was allowed to get up. (At this time it was not known that the father had died of diphtheria.)

On Dec. 4th the nurse observed that the boy could not stand properly in his bath; the limbs appeared weak.

On the 7th, on getting up, he walked very badly, staggered, and fell down. He was at once put to bed. On examination both legs felt very flabby; the right calf measured a trifle less than the left, and just above the knees there was a slight difference in favour of the left. As he lay in bed all movements were performed, but not with much strength. There was no loss of sensation; no pain anywhere. No prominence of, or tenderness over, any of the vertebræ. The grasp of each hand was rather feeble, but the right was much the feebler. The muscles of the arms felt flabby. Pulse 104, very small. No enlargement of glands in neck. Fauces a little red. He drank, and the fluid did not return through the nose. The voice was a little nasal. Temperature always below normal. There was some rhonchus over both backs; no dulness. Cough without expectoration. Urine not albuminous.

On the 13th the voice was much more nasal than before. Drinks did not return through the nose, but he was obliged to take a breath between each mouthful. He could not sit upright, held his head up very badly, and the muscles of head were weak. When lying down in bed could not raise himself to sitting posture. Pulse 108, irregular. Heart-sounds irregularly intermittent. He could raise either hand above his head. The grasp was feeble with left hand. The constant current, thirty-five cells (Leclanché's), did not produce any muscular action in the legs. There was no evidence of impaired sensation. He had a rather troublesome loose cough; air did not enter very well anywhere; inspiration did not seem full enough; there were some dry sounds with expiration.

On the 15th it was noted that he could not stand, and next day he could not raise himself off the bed. He had no power to sit up or hold his head up. There was no facial paralysis. The tongue protruded straight, slightly furred. The arms and hands were extremely weak. There was paralysis of sphincters. The chest expanded well, but depression of diaphragm on forcible inspiration was very feeble. There was impaired resonance at the left posterior base; the breathing was weak, and accompanied with a little râle at both bases. The heart's apex beat just beneath the