

NITRO-GLYCERINE (Liq. Glonoin)

AS AN

ACCESSORY TO DIGITALIS

Illustrated by Cases, with Remarks

By

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Amongst English physicians Dr. Murrell has given most attention to Nitro-Glycerine, chiefly as a valuable remedy, for combating attacks of an Anginous character. Others again in this country have praised the merits of the drug when prescribed for Neuralgia, Asthma, and Asthmatic Bronchitis, but it is needless for me here to enumerate the diseases which have been treated by the Nitro-Glycerine.

Continental writers have given Nitro-Glycerine, serious attention as a valuable diuretic especially in Kidney Disease, and have gone so far as to say that in Bright's Disease, the use of the drug has been followed by a diminution in the amount of Albumen.

I have come across no instance, or instances, where, Nitro-Glycerine, was, in combination with Digitalis used in the treatment of Heart or Renal affections. Having tried the combination in such diseases, and, having found

that they yielded extremely gratifying results, it occurred to me, that such an interesting subject, might be made a fitting test for the Thesis now put forward.

The origin of this novel treatment, was brought about by the fact, that, in more than one instance, all ordinary remedies had failed after trial, to bring about a beneficial result, ^{and not} until Digitalis and Nitro-Glycerine had been prescribed, did good follow. And again, it was found that Digitalis and Nitro-Glycerine, when administered, brought about the desired result, more rapidly and indeed more effectually, than in those instances where other drugs had been used.

Theoretically then, to me Digitalis and Nitro-Glycerine, appeared an ideal combination, and to me the theory was practically proved, but, future remarks on the cases to be detailed, will bear me out in these explanatory statements.

D^r M^r Russell in his book "Nitro Glycerine in Angina Pectoris", proves in a most thorough and

convincing manner, that small doses of

Effect of 1 min Nitro Glycerine produce striking results.

Dose in HEALTH Have administered minim doses of the 1% solution to strong able bodied men, and one and all had the same experience; ~~to~~ namely, Splitting headache, a fear of falling, on account of a sensation of dizziness in the head, a dryness at the throat, and "beating at the Heart".

Effect of 2 min In trying the action of the drug further, I obtained in Dose in Health. the first instance, from experimenting on others, but took myself two minims of the 1% solution. The headache which followed was unbearable, in fact painful, breathing was oppressed, my temporal arteries seemed to wriggle, and my radials beat at a great rate; agitation at the time prevented me, from counting the rate of the pulse. Sickness I felt coming on, but that I ascribed to the giddiness, which wore off however, too gradually to give the desired relief. After tossing myself on to my bed, brought ease, but the intense bursting sensation ⁱⁿ of my head, prevented me from procuring rest, finally brought the open air

which brought me round somewhat. For the rest of the ~~afternoon~~ afternoon, I felt "light in the head."

Confirmatory

To two other cases in the wards, both patients suffering from fractured limbs, I administered respectively two minims of the same solution. Both men were naturally pale, but lying side by side as they were, the sudden red flow, which suffused their faces, so soon as the drug took effect, proved in itself an object of amusement to the other patients. Their eyes seemed to "stand out", their pulse rates, before the drug was

Pulse
Hurried

given, were respectively, 79, and 63 per minute, when the effects of the Nitro Glycerine were fully manifested, the above figures were changed to 132, and 129.

The pulse at the wrist was full, and not easily compressible. Breathing became more rapid, no feeling of sickness ensued, though the intense jiddiness was accompanied by a transient nausea, and both men complained of their hearts "thumping" against the chest wall. So as to lessen the severity of the pain in the head, one of the men, compressed his temples, between his hands, demonstrating the "speltty"

character of the headache. It is needless for me further to detail other symptoms, suffice it to say, that, after having seen the effects of the drug on many other healthy patients, and finally having tested the effects on myself, I fail to comprehend how, the medical men mentioned in the first few pages of Dr. Murrells book, could possibly swallow such huge doses of Nitro Glycerine, and yet feel comparatively slight effects, on their showing the explanation is difficult.

Before plunging "in medias res", my experience of the 1% solution of Nitro-Glycerine, leads me to note, that those suffering from Cardiac Disease, or from Impaired Circulation do not suffer nearly the same uncomfortable effects, if any, from the administration of the drug in frequent doses, as do those to whom it is administered when in sound health, even in sparing quantities.

That fact is perhaps obvious, but bearing in mind the physiological action of the drug, on which the rationale of treatment to be detailed is founded, the explanation is made easy.

CASE II

John Dowie, aet 61. Weaver. Admitted JAN 1st 1890

Complaining of shortness of breath,
cough, and general swelling.

Previous
History

The previous history of the patient was good. He never had suffered from Rheumatic Fever, Chorea, nor Scarlet Fever. As a child he had measles, and whooping-cough.

Family History

This Family History was void of importance; he had neither brothers nor sisters, and his parents were aged at death.

Present

Illness

His present illness began about two years ago when he complained of having a short cough, and was easily made breathless, but beyond these symptoms he was little troubled with his "Chest". At the end of a year, he was however, admitted to Perth Infirmary, as a patient, and after a fortnight's residence in the wards, he was dismissed, and was so far relieved as to again resume work [The only record of the case kept at that time, was Cardiac, Disordered, Improved] His work necessitated the use of both his arms and legs, so that after persevering for a time, he began to find himself becoming "shorter in

the wind", and in addition his feet began to swell. These fresh exacerbations of his trouble took place, from time to time, till about six weeks ago, when he began to get much worse. He was unable to do a full day's work, on account of his shortness of breath, cough, and the swelling in his legs, and, about three weeks before admission he had to knock off work altogether. He then took to bed, and was treated at home, for a fortnight, without benefit, however.

Physical Examination

On admission the patient had to sit upright in bed, to gain breath, his lips were blue, and the face was distorted with puffy swelling. The hands and feet were extremely cold, and swollen out of proportion. The oedema of the legs and dependent portions of his body, was marked. A constant source of irritation to the patient, existed in the form of a short "tickly" cough. There was oedema of the skin overlying the abdomen, but the presence of fluid could not be made out, in the abdominal cavity.

The physical examination, which was conducted under great difficulties, shewed that the right

HEART

border of the heart's dullness, extended to nearly the right edge of the sternum. The apex beat which was distinct and diffuse, was felt best, in the sixth intercostal space, though a fairly strong impulse could be felt in the space above. The left border of the cardiac dullness, corresponded to a line drawn perpendicularly through the left nipple. Pulsation in the Epigastric region was very marked.

MURMURS

The sounds of the heart were abnormal. That is over the mitral area, a murmur accompanied the first sound, and one also accompanied the second sound; whilst over the base, ~~the~~ both first and second sounds were associated with murmurs. The second murmur distinctly heard down the sternum. The sounds were distant, and conveyed to one the idea of an organ tired of its work, with its reserve forces flagging.

LUNGS

The bases of the lungs, posteriorly were dull to percussion, as far up, as the upper border of their lower thirds; whilst, the breath sounds were weak, and were accompanied by moist râles. In front the R.M. was also feeble, rapid, and the expiratory sound prolonged.

Pulse

The radial pulse, was rapid, 115 per minute, compressible, and of the "water hammer" character.

Urine

Was scanty, albuminous, specific gravity, 1.028.
The Bowels were costive.

TREATMENT

The treatment employed in this case, as in others much similar, was, to give the patient a good prop for his back. Siphons of Potash and milk were allowed ad libitum.

For the anxious attacks, which were frequent, the application of hot fomentations to the precordium, was resorted to, while medicinally Teaspoonful doses of the 1% solution of Nitro Glycerine, each teaspoonful containing 1 minim, were given every two hours.

Next day, the patient had got relief from his urgent
Amount of depression, and the flow of urine had increased slightly
Urine as 25 ounces were measured, and during purgation which was active, some urine was voided, but the quantity could not well be estimated.

Dose of Nitroglycerine During the evening of the same day, on account of the short quick breathing, and the evident increased difficulty in "getting wind" as the patient expressed it

together with recurring anginous spasms, two minim doses of Nitro Glycerine, were administered every two hours, till relief was noted, which was after four such doses had been swallowed.

Progress

On the third day, after admission, the patient felt much "lighter across the chest", and his surface, and extremities, were comfortably warm. The heart's action, was much more steady, his pulse beats numbering 85, and the breathing was not nearly so rapid. Only an occasional heart "pang" was now felt by the patient.

The face was far from being puffy, and the skin overlying the shins was beginning to show marks of relaxation, in the form of wrinkles. Urine 60 ounces.

At night he had a dose from the following prescription

R
Tinct Digitalis ℥i
Sol. Nitro. Glycer. 1% m XII
Aqueae ad ℥vi
Σ. ℥ss ter in die

Next day, the patient said that he had never had yet such a nice "sleeping draught" before

as, after taking it, he had slept for four hours.

This was most gratifying news, as it revealed the fact, that the heart was grateful for the tonic it had received, especially seeing that it was in urgent need of supplementary aid. Need not detail the amounts of urine passed, as the chart will indicate that for me.

Pulmonary

Stagnation

Clearing Up

On the following day, the patient, had disengaged with his bed-rest, and was lying comfortably on his side, whilst the spittoon was being actively used, for, with the renewed impetus given to the heart, the stagnating lungs were freeing themselves of their burden, in the form of mucous-frothy expectoration.

On the 5th day of treatment, there was only a slight trace of albumen in the urine. His diet was restricted to milk, fish, and chicken the two latter in sparing quantities for the first week.

Condition

10th Day

~~On~~ On the tenth day, after admission the man was reduced to a comparative skeleton, and he presented a hungry look. The flabby face, was replaced, by prominent malar, and the distorted legs by well defined extensor tendons, and

sharp edged tubes.

The murmurs were still present, but the sounds abnormal as they were, gave an indication of more strength giving rise to them. The percussion notes at the bases of the lungs posteriorly were clear, while only a few rales now remained, of the formerly existing "bubbling sounds".

No Albumen

The urine was free from albumen, the amount was 91 ounces, and the specific gravity 1021.

At the end of a fortnight the following prescription was administered, with \mathcal{R}

a view of further building up the economy, by providing a better blood supply.

\mathcal{R}
 Tinct Digitalis $\mathcal{Z}\text{ii}$
 Ferric Ammoniel $\mathcal{Z}\text{ii}$
 Sol. Nit Gly 1% $\text{m}\ \mathcal{X}\text{ii}$
 Glycerin $\mathcal{Z}\text{ss}$
 Aquae ad $\mathcal{Z}\text{vii}$
 \mathcal{S} . $\mathcal{Z}\text{ss}$ ter in die

Dismissal

On the 12th of February the patient was dismissed greatly improved. He had still "Heart Disease" but oedema and all its former alarming symptoms were gone. His second prescription he took with him, and in a month's time, heart is in the

beginning of March, the man as desired reported himself to me. He had given up work, and having slight attacks of "beatings at the heart" he felt strong and well.

REMARKS

Taken from the beginning the points of interest in this case, are first, the history of his illness.

The illness was brought on evidently by the exertions employed, in the working of the hand loom, as, no history of Rheumatic Fever, Chorea, or Scarlet Fever, was got.

At this employment then, both arms and legs are kept in constant motion, while the arms are frequently raised above the level of the head, and so throw the weight of a certain of blood on to the heart. That weight exerted for numbers of years daily, must have added materially to the labours of the heart.

A physiological explanation, for the presence of the heart lesion, can however be given. This man was placed in an analogous position to that of an athlete, who by the interrupted use of his limbs induces a state of simple hypertrophy of the Heart. Hypertrophy too would follow in the case now

under consideration, because the patient was in the habit of moving his arms, and legs freely. The severe muscular strain undergone by such a person, would act indirectly on the blood vessels, which would as a matter of course, become compressed between the contracting muscles, and so the blood current would be retarded.

If the heart is well nourished, it of course begins to gather itself up together, for the required work, of keeping up the accustomed blood supply, and as a simple physiological hypertrophy takes place.

Here however the analogy between the Athlete and the Weaver ceases, for the former gives up his exercise as a rule, when he comes to feel, that his fleetness, is beginning to leave him; whereas the latter goes on toiling, because to him labour is a work of necessity. So that in the case of the Athlete the heart by degrees returns to its normal condition, by a process of involution, when the strain is taken off it, but in the instance of the Weaver, through the continuance of exercise the blood vessels follow the example of the Heart, and participate in hypertrophic changes.

This hypertrophy, of the vessels being due to a desire on their part, to cope with the heart, which is acting more powerfully. So here, the increased strain begins to act as a mechanical irritant, and Endarteritis sets in [Coates Pathology page 352]. At this point the physiological work of the heart, and vessels ceases, and the pathological stage is entered upon.

Endarteritis having begun, the secret of the heart lesion is made comprehensible, for, the very parts which feel the strain most, are situated in the valves of the heart, and the large vessels near the heart. The principal seat of Endarteritis being at the Aorta, where the full force of blood is felt, after Ventricular Systole. [Coates p. 352]

The above digression is pardonable, as it seeks to explain the cause of the serious valvular lesion, and reveals the fact, that simple obstructive forces, may in process of time, become originators of Pathological changes.

Secondly the point of interest calling for remark is regarding the treatment. It was the common rule, to treat cases of Heart disease, with Dropsy

with Digitalis, Citrate and Acetate of Potash, Spiritus Aetheris Nitrosi and so on, but as already stated the results got, were not always most sure, nor was the end in view always rapidly reached. Nitro Glycerine ^{was} then subsequently employed, and invariably with most gratifying results.

I well remember, the relief marked on the weaver's face, after he had had a few doses of Nitro Glycerine, and he no longer complained of the "tightness across his chest". What would have been the result, had a few doses of ~~the~~ Digitalis been employed instead?

The Digitalis would have commanded the heart to perform an impossible feat, namely to force its contents through almost completely obstructed channels; whereas the Nitro Glycerine made way for the blood current, and consequently relieved the puffed heart.

Rationale
of
Treatment

The idea aimed at in this as in nearly all other cases, similar, was to get rid of the obstruction in the most easy way possible, and when that was accomplished, the way was clear for more forcible future treatment.

Influence
of
Nitro Glycerine

Nitro Glycerine, by its action ensured the widening of the capillaries throughout the body, the flow of blood through the capillaries and smaller blood vessels, became more active, and so the heart got "breathing space". The choked malpighian tufts were distended, and began to feel, that there was activity in store for them after all. Diuresis was encouraged too, by the exhibition of an abundant supply of bland drinks. The pulse was improved as a rule after a few doses of the drug, breathing became more tranquil, and the surface had a comfortable flow of heat imparted to it. Digitalis was never exhibited till diuresis began to be free, nor was it given until the heart's action began to flag, when it was seen that it could afford to be pushed a little harder.

The third and last point worthy of mention, is the withholding of the Iron, till convalescence was practically established.

Text books inform the student, that Iron may be very advantageously combined with Digitalis for heart lesions; but no discretionary limits are

given. For instance where passive hyperemia, causes a turgidity of the mucous membrane of the stomach, and where powers of absorption, and assimilation are at their weakest, it is rational to say, "don't give the stomach drugs which it cannot absorb". Rather give it some thing light, but which it can at the same time assimilate, to repair the damage done, through another source, either by spurring on the heart, to renewed activity, or to slice the choked kidneys.

It is quite fair to suppose that, cases of intolerance of Digitalis have been said to exist, where the drug was poured into a stomach totally unfit to receive the prescription, upon which so much reliance had been placed; where a little judicious treatment, would have revealed the necessity of taking the heart by the hand, and gently pulling ^{it} _{it} into working order, so that secondarily the important parts of the economy also might be set right.

In this case where the Digitalis and Nitro Glycerine had done their duty, and where the stomach was in good condition, the administration of Iron was

followed by good results, the further enriching of the blood, built up the Cardiac muscle, and so rendered it quite fit, when due care was taken, to cope with its former annoyances

CASE [2]

David M^r: Killop aet. 45. Woodcutter admitted to Perth Infirmary Jan 10th 1890, complaining of swelling in his feet and legs, with shortness of breath, and palpitation

Previous History

Patient had always been a hard working man, and had been in the habit of using his arms very much, whilst felling trees with an axe, or when using the cross saw, he also was required to lift very heavy weights. Exposure to inclemencies of weather was frequent, and unavoidable. He was neither a hard smoker, nor was he "fond of his glass". His previous health had always been of the best, this in fact being the only illness that caused his confinement to bed. He never had Rheumatic Fever, Cholera, or Scarlet Fever.

Family History

The family history was devoid of importance.

History of Illness.

About two years ago, for the first time he began to complain of a slight pain about the left breast, and, after slight efforts of undue exertion, he began to feel short of breath. As time wore on, the symptoms of cardiac distress made themselves more manifest, so much so, that, six weeks previous to his admission to the Infirmary, he had to seek medical advice, on account of a dizzy feeling, and sensation of suffocation which overtook him. At night too he was frequently awakened by the feeling of his "breath leaving him".

Not until a fortnight before admission did he find it impossible any longer to follow out his usual occupation.

State on Admission

Patient was plethoric, very breathless, and had to be aided in his efforts of locomotion.

Pulse

The radial arteries were atheromatous, the pulse, was weak, compressible, rapid, and intermittent, numbering 118 pulsations to the minute.

Heart

The region of the apex beat, was distinct, somewhat diffuse, and the area of greatest intensity in and a little below the fifth interspace.

The action was rapid, but intermittent, and epigastric pulsation was distinct.

Over the mitral area, a blowing systolic murmur could be heard, whilst over the aorta area the second cardiac sounds ~~were normal~~ ^{was accompanied by a murmur.}

Slight pain was complained of on palpation over the hepatic region, but there was no increase in the dull area above normal.

Lungs

The percussion note, both before and behind, was resonant; and the breath sounds were free, and free from râles.

Oedema of the legs as far up as the knees was marked, but not exaggerated.

Urine

Urine. Sp Gravity, 1029, distinctly albuminous, and with nitric acid, bilious reaction.

Treatment

The treatment of the above case, was then, as was usual, the supply of milk and aerated water, and on the evening of admission, the ad-

ministration of a cathartic in the form of Pab. Jalapae Co.

Nitro-
Glycerine

During the evening of the first day, he was ordered teaspoonful doses of the 1% solution of Nitro Glycerine every two hours, that is, one minim in each dose.

He received no stimulant, beyond an ounce of brandy in hot water, about 8 P.M. Next morning early the bowels moved three times, and in the forenoon the patient felt considerably better, the dizziness in the head too had disappeared.

The treatment begun was kept up for the first 24 hours, the doses of the Nitro glycerine being however given, after the night had elapsed, every four, instead of every two hours. During the first 24 hours 28 ounces of urine were passed, but some was lost, when the bed pan was in use.

After the expiry of the first day, Digitalis and Nitro glycerine, were prescribed in combination.

Rx Tinct Digitalis $\overline{3\text{ss}}$
Sol. Nit. Glycerine 1% $\overline{\text{m} \times \text{II}}$

Aquae ad $\overline{3\text{vi}}$

℞. 3℞ ter in die

DISEASE.

(X) Purgative

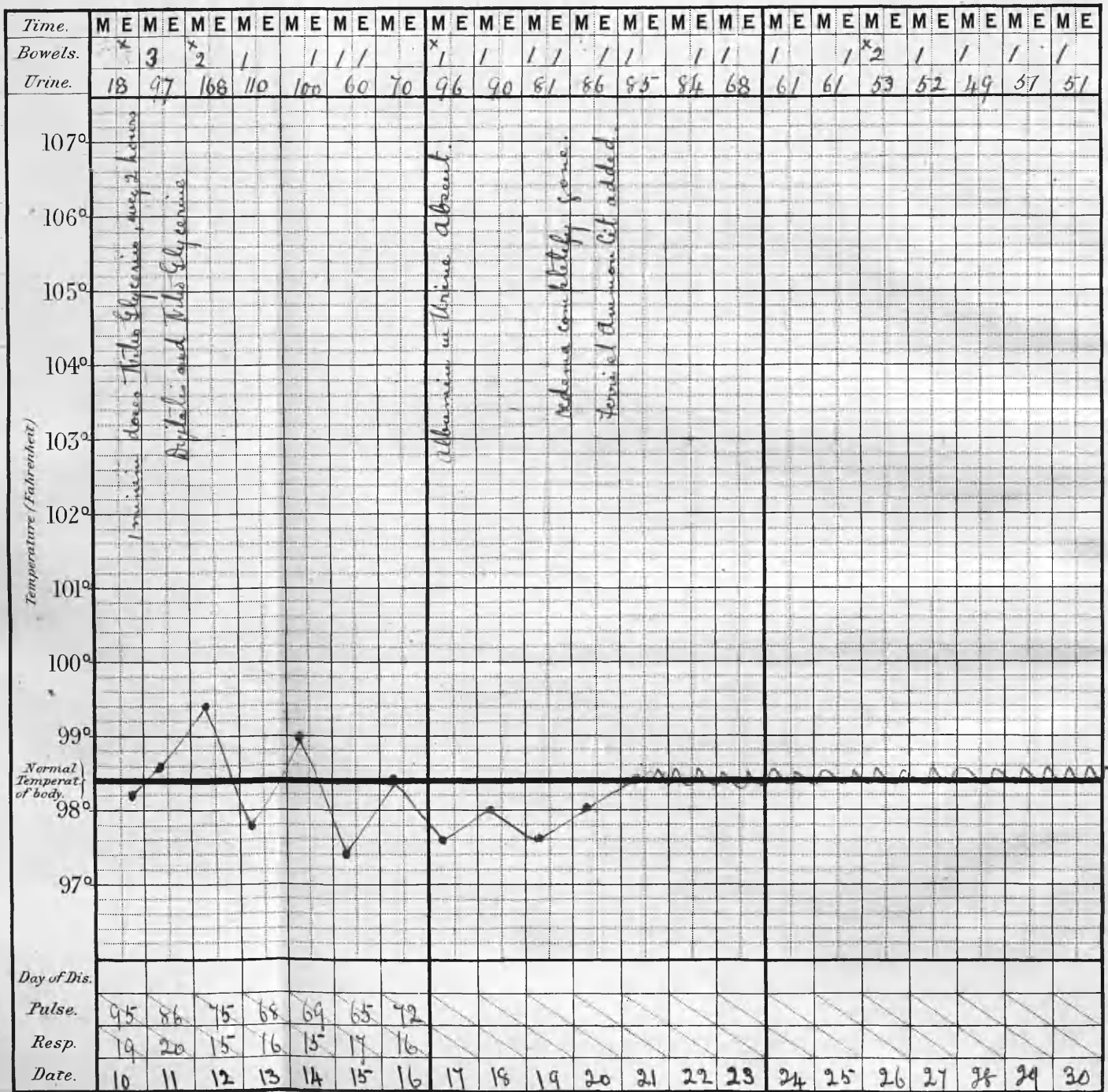
Notes of Case.

Name { David
Jr Killop

Age

Diet

Case Book N^o



on admission 118
21
Date of admission.
JANUARY

Result

Under that treatment the progress of the case, was good to the end; on the third day the urine flow took a sudden leap, ^{and} no less than 168 ounces ~~was~~ were collected. It is needless in this case to give in detail daily results, suffice it to say that the urinary flow kept up to the end, and the progress of the case was most cheering. A note taken from the Journal may be of interest however.

Jan. 24. The patient has considerably improved in every respect. The heart's action is steadier, the murmurs are both present, but the mitral systolic murmur is not so intense. The pulse is fuller, and only rarely intermits, it numbers 69 to the minute. The sounds in his head have completely left him, and he never has his attention drawn to his heart, by the formerly annoying palpitation.

Three passed to-day 84 ounces, no albumen, and the oedema of the legs, completely away.

Feb 3. Patient left well, taking with him the prescription given on page 23, with iron added to it, see page 12 for prescription

REMARKS

This case forms a marked contrast to the one previously detailed, as in this instance though the symptoms called for urgent treatment, they were not like those of the first case alarming. So that, though the treatment of this case was to begin with persunaine, the aid of Digitalis, was called into requisition sooner than it had been in Dowie's case. In other words the floodgates were more easily opened in this than in the former instance.

In Dowie's case, it was necessary, in the ^{first} place, to give the heart freedom to act, whereas in this case though the heart had not great obstruction to overcome, it was being called upon, to do more than its flapping energies would allow, when left to its own resources.

The cardiac muscle was like a tired animal, the whip in the form of Digitalis might in both patients have been at once employed.

But bearing in mind that Nitro Glycerine, could best give the heart physiological rest, the whip was laid aside in the first place, so as to allow the Nitro Glycerine to set up an

equilibrium in the smaller vessels, and secondly by doing that, to supply a starving brain, and weakened pump, with an improved nutriment.

Whenever this equilibrium was reached, Digitalis was unhesitatingly prescribed to maintain it.

The remaining point worthy of mention, was, the presence of valvular mischief, and accompanying atheroma of the blood vessels, which would bear out the view, of the interrupted, and in this case reverse strain, being the chief factor in producing changes in the walls of the blood vessels, and secondarily in the cardiac valves themselves; the strain being in reality an irritant.

CASE 3

Henry J^r Gonigal aet 59. Labourer
Admitted Feb 27 1890 complaining of shortness
of breath, harassing cough, and general swelling.

Two months previous to this, the man had
been a patient in the Infirmary, suffering from
"Chronic Bronchitis, Emphysema, and Cardiac Dilatation",
after a stay in the Hospital, of three weeks, he was
at that time dismissed "Greatly Improved".

History of
the Patient

The following is the history of the
patient, taken on his admission two months ago,
that is in December 1889.

As a child he had measles, scarlet fever, and
whooping cough, but after adolescence he became
healthy, and was free from serious illnesses.

For over forty years now, the patient has
followed the usual routine of a navvies life, and
for the last three years he has been engaged at Glen-
farg, in connection with the Forth Bridge railway.

His work, of course necessitated constant ex-
posure, both summer and winter, whilst he sleep.

ing shacks occupied by all the workmen along the "Contract" were found in wooden huts, arranged as dormitories. Exposed as they were on heights, these places, during the winter months, were especially cold. Food was to him a secondary consideration, irregularly partaken of, and carelessly prepared. Changes of clothing were not obtainable, when necessities arose, for procuring dry coverings, to replace those saturated by rain or snow. Patient was a man of intemperate habits

As already stated beyond the illnesses of childhood, the man up till the age of 40 had enjoyed robust health. He never had "inflammation of the lungs", nor any other chest disorder.

After the age of 40 however, his health began to deteriorate, as the first warnings of his future troubles revealed themselves by the presence of a troublesome "winter cough". His habits of intemperance too, were becoming vicious, and he began to subsist mainly on the whiskey, as an article of "food", as a result, exposure by night was frequent, and carelessly indulged in.

History of Present Illness

The present illness has no definite starting point, but must be held as beginning about 19 years ago, when the winter cough set in. The cough to begin with was never a source of concern, but during the last two winters, he had on various occasions sought advice, at the Dispensary, when expectorant medicines were prescribed. I may now pass on, to give the physical state of the man, on his second admission; suffice it to say however, that on the first occasion, oedema about the ankles was trivial, and the urine was free of albumen.

Physical Condition

The patient was a pitiable looking object, begrimed with filth, and his face distorted by oedematous swelling. (After leaving the hospital the patient had contrary to advice, returned to his work, and had been drinking very heavily). His lips were livid, his hands and feet immensely swollen, brawny and hard, and out of proportion to the man's natural slenderness. The extremities were very cold.

A "tickly cough" was almost incessant, his breathing

short, and hurried, whilst the accompanying wheezing could be heard at a distance.

Pulse.

The pulse, numbered 125 beats to the minute, was easily compressible, and the radial arteries were alternations.

Heart

The heart sounds were very weak, and the action rapid. Accompanying the first sound at the mitral area was a soft blowing murmur. Over the aortic area, no distinct abnormality in sounds could be made out, though the sounds were muffled, and distant.

Over the tricuspid region, a distinct murmur indicating regurgitation was made out.

Further physical examination at the time was out of the question, as the patient's extreme prostration contraindicated undue exertions on his part.

The legs were immensely swollen, and lay like logs in the bed.

Urine

Urine was high coloured, acid, contained albumen, and had a specific gravity of 1026

After the cleanliness of the patient had been looked to, he was propped up in bed, and his body was surrounded more or less with hot water bottles, warm diffusible drinks were given to him internally.

TREATMENT

Nitro

Glycerine

To relieve his hurried and oppressed breathing teaspoonful doses of the 1% solution (each dose containing one minim) were given every two hours, and that treatment was kept up from 4 P.M. till 12 a.m. that is midnight, after which time the nitroglycerine was given every three hours. The reason of the change being, that the body heat had increased to that of comfort, ~~and~~ the breathing was less hurried not so oppressed, and the pulse was more full.

Early in the morning he got a large dose of Comp. Jalap powder, and next day, the bowels moved three times. The amount of urine collected only amounted to 10 ounces, though some was lost no doubt while the bed pan was in use.

Next day, 28th, the patient ^{felt} a "wee better" though that fact was not apparent to the attendants and myself.

Progress

Questionable

He was still greatly oppressed, and breathed with great difficulty, his lips were livid, and his veins "stood out".

LUNGS

The lower thirds of both lungs posteriorly were evidently at a stand still, as, to percussion these areas were absolutely dull, and no R.F. could be heard. The heart sounds were louder than they had been on admission, and the mitral and tricuspid murmurs were more distinct.

The urine was still albuminous, and scanty.

Although the patient's strength kept up well, no visible improvement in his condition was taking place, so that, on the 29th, it was thought advisable either to vary the treatment, or to bring in additional aids to the treatment employed.

Digitalis then was called upon, along with nitro glycerine, to ~~set~~ set matters on a better footing, instead of improving affairs, his treatment if anything did harm, cyanosis became alarming, and the urinary ^{flow} fell below the standard of the two previous days.

Venesection

On the 30th Venesection as the only other alternative was resorted to. The vein in the arm was easily got, and 10 ounces of blood were removed from it. After the abstraction of blood, he felt light and fiddy, but brandy brought him rapidly round, and for the rest of the afternoon and evening tea-spoonful doses of 1% col. of Nitro glycerine, were given every three hours.

On March 1st Digitalis and Nitro glycerine, were readministered together, the former in ii and the latter in i , minim doses, three daily, and at the end of 24 hours the flow of urine had materially been improved; 40 ounces having been collected.

Result

March 2nd. The patient was a lot better, and was inclined to sleep, so tired out was he. The cough still irritated him a good deal. The oedema of the arms, legs, and dependent parts of the body, was still distinct, but the fingers sunk much more readily into the boggy swelling. Urine 140 ounces.

March 3rd. The urinary flow, has risen to 180 ounces, and the man is becoming more presentable.

March 3rd

He can now lie flat in bed, and can now so far appreciate his improved state, that he asked to be allowed to smoke, the mild request was not however acceded to.

Pulse

The pulse ~~was~~ fuller than it yet had been, and was not easily compressed, it numbered 71 to the minute.

HEART

The heart sounds are more audible, and nearer to the ear. The apical murmur is present, but the tricuspid murmur is far from distinct.

Urine

The urine was pale, had a Sp. Gr. of 1028, acid in reaction, with a trace of albumen, after the specimen had been allowed to stand for a time.

On the 5th improvement was marked, oedema had almost declined. Urine 17g ounces.

8th March

8th March Oedema completely absent. Urine free from traces of albumen. The sharply outlined nose, and thin scraggy legs, now contrasted in a marked ^{way} with his state on admission.

The pulses were fairly strong, and regular, the radials were however tortuous.

Murmurs

Cardiac examination, revealed the presence of an indistinct mitral regurgitant whiff. But the

DISEASE.

Time.	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
Bowels.	3	1	x	3	2	1	1	1	x	2	1	1	1	1	1	x	1	1	1	1	1	1
Urine.	10	12	8	18	40	140	180	182	179	146	82	64	54	50	48	49	34	39	51	47	42	
Temperature (Fahrenheit)	99.0	99.2	98.5	98.5	98.0	98.2	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	
Day of Dis.																						
Pulse.	85	80	89	82	72	75	71	73	81	83	76	69	71	68								
Resp.	20	16	10	16	17	14	15	15	16	14	17	16	13	15								
Date.	27	28	29	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

Notes of Case.
 Name { Henry
 pe
 Lounjal
 Age
 Diet
 Case Book N^o

1 min doses Nitro Glycerine every two hours
 Digitalin and Nitro Glycerine
 Venisections to 10 ounces
 One min. Nitro Glycerine every two hours
 Trace of albumin in Urine
 Oedema. Absent
 No albumin in Urine.
 Apical systolic murmur, traceable
 Ferris et Potassa Cit. prescribed
 Apical Murmur Absent

on admission 125°
 30
 Date of admission.
 February

murmur of tricuspid regurgitation was entirely absent. The aortic sounds were well defined and not accompanied by any murmurs.

LUNGS

The former dull area at the bases of the lungs posteriorly was absent. The R.F. was strong both in front, and behind, inspiration was accompanied by occasional wheezing râles, expiration was prolonged all over the chest.

On the 10th the diet was made to include fish and chicken, and iron was added to his prescription.

He was allowed up for a short space of time, and on rising he had one or two fits of coughing.

From the accompanying chart, it will be seen that the flow of urine kept up in a pleasing manner.

Dismissal

In six weeks from the date of admission, the patient was dismissed, and was sent to a neighbouring Convalescent Home. He was in wonderfully good condition physically, no oedema, very little cough, and the murmur at the apex gone.

He was told to keep up the treatment he had been getting medicinally, and in a month after, the man

having meanwhile gone into the poor-house, his condition was in every way satisfactory.

REMARKS

There are many points of interest in the case just detailed, and these may be now considered here.

The history of the case, proves, that the man, whilst following out his avocation, was exposed to the worst of weather surroundings; and that with advancing years instead of guarding himself from further exposure, he was unduly careless, and led a very intemperate life.

Whilst under the deep influence of alcohol, and added to this, the fact of his sleeping out in the cold raw air, frequent passive congestions of his lungs came and went. Naturally then, the resources of his heart, and lungs were ^{taxed} considerably, suffering as he was at the same time, from a Bronchitic affection.

Bearing the above facts in mind then, it is no small wonder, that on his second admission to the wards, his heart ~~for~~ refused entirely to be coaxed into performing its wonted functions.

Mild measures were tried to begin with, these failed, although the patient was eased a little it is true, yet

the Nitro Glycerine failed to open the floodgates, so as to free the waterlogged tissues of their watery burden.

Repeated purging too, failed to "draw the heart."

Before resorting to the use of depletory measures, the alternate treatment appeared to be the forcible treatment,

Flamm

Produced

by DIGITALIS

Digitalis was further prescribed, with the result already stated. If anything were only made worse, the man became more livid, his breathing became difficult and oppressed, respiration was shallow, and as a result of mal-aerated blood being sent to the brain Cheyne Stokes respiration was developing itself.

The amount of urine also fell short of the previous days quantity.

His cough was reverse, and its exaggerated continuance, only tended to render cardiac efforts more difficult.

The heart was being asphyxiated, by the pulmonary stagnation.

Venesection was resorted to, in the hope that temporary, if not permanent relief, might be obtained for the obstructed heart, and lungs, not to speak of

the kidneys, which also participated in the general strike. The venesection was as usual in such cases followed by slight syncope, which was atoned for directly by the exhibition of a stimulant.

This was the second case that had been prevailed to treat by the employment of venesection, as a remedy, and the results were good, both patients having been snatched from what appeared impending death, from Asphyxia.

As soon as the heart was relieved it received the attentions of Digitalis and Nitro glycerine combined. But as already said, on page 33, following venesection for the first few hours, Nitro-Glycerine in minim doses was given, so as to ensure as well as possible the setting up of an incipient equilibrium.

So soon as Digitalis and Nitro Glycerine, began in unison to exert their influence, the urinary flow went up considerably, and ever after that, the patient who at one time appeared hopeless, rallied and progressed very rapidly. see chart

When the condition of this case was at its worst, examination of the heart, revealed the presence of two regurgitant murmurs; one being at the mitral valve, and the other at the tricuspid valve. On the day of dismissal and indeed a short time previous to his dismissal, the man presented a heart, which was free from either of the above murmurs.

Dr Sanson in his Lettsonian Lectures, gives a classification of Heart Murmurs, and one ~~to~~ of his classes is considered, under the head of "Curable Murmurs", or in other words Functional or Haemic Murmurs.

CURABLE

MURMURS

Now, I would humbly put forward the claim of murmurs, considered in this case, ~~as being~~ ^{to be} also called so called "Curable Murmurs".

In a case of long standing Chronic Bronchitis, with concomitant Emphysema, such as we have under consideration, the backward force caused by forcible coughing, causes eventually dilatation of the Ventricles, and secondarily, if the case goes from bad to worse, dilatation of the Auricles.

In Anæmic conditions the blood is at

fault, and dilatation of the cardiac chambers follows the consequent impoverishment of the cardiac muscle, dilatation too is hastened on by high arterial tension which is demonstrated to exist in anæmic subjects.

Analogy
as regards
Blood being
Causes of
Murmurs

In Bronchitic affections, when chronic, the blood which is also at fault, in permitting dilatation to progress, for the reason that, when the heart begins to flag, mal-aeration of the blood ensues, owing to the imperfect propelling power of the Rt Ventricle.

Consequently then the muscle of the heart, is supplied in an analogous way to the Anæmic Heart, with blood surcharged with Carbonic acid, and deficient in Oxygen, in Anæmia, there is a deficiency of Iron and Oxygen.

In Bronchitis the heart is poisoned by Carbonic acid, in Anæmia it is starved from the want of Iron, and Oxygen.

Both anomalies favour adynamia of the Heart muscle, and "murmurs" follow, owing to the flaccid walls of the cardiac chambers, and imperfect coaptation of the valve curtains.

Pathological phenomena in both Diseases, under

appropriate treatment, are replaced by physiological conditions.

For instance, in the case just considered, the flaccid walls of the heart, were braced up, and strengthened firstly, by the action of Digitalis and its adjuvant Nitro-Glycerine, and secondly by the providing of better blood, in consequence of the rejuvenated "pump".

Instead then of having the mitral and tricuspid valves, dangling loosely in the stagnating current, their margins were brought into apposition, the widened cardiac chambers having been drawn together, ^{and} the regurgitant murmurs were replaced by normally shut off sounds. If then the murmurs of Anæmia can be called curable ones, then I think the murmurs caused by dilatation in Chronic Bronchitis, can come under the same category. Both are treated much in the same and in view, namely for an improvement of the condition of the blood.

In anæmia we act directly on the blood, in Chronic Bronchitis, on the other hand, by attacking the heart, when we make it propel the current more efficiently

so that Carbonic acid may be replaced by Oxygen.
Iron and Oxygen being in the respective maladies
the most important deficiencies.

CASE IV

Thos Taylor. aet 66. Threshkeeper
Admitted May 12th 1890, suffering from short-
ness of breath, cough, palpitation, and swollen legs.

It is not necessary for me to go into ex-
haustive details, concerning the minute previous history
of the case, as it bears no special interest in that respect.

Previous
Health

Up till 15 years ago, she had always had robust
health, measles alone she could definitely say had been
her only illness as a child.

About 15 years ago then, she had "Rheumatic Fever"
which implicated all her joints, kept her confined
to bed, and ~~so~~ affected her, so that she couldn't "lift"
either her arms or legs.

Three years ago she began to feel the effects of a cold
contracted in the spring, and every winter since
a troublesome cough annoyed her.

Present
Attack

Her present attack began about the New Year time, its onset was marked by increased shortness of breath, giddiness on stooping, severe cough, and heriodical attacks of palpitation. As time wore on each of these symptoms became more apparent, and troublesome. Three weeks previous to the date of admission she had to leave off work, and ~~went~~ ^{took} to bed.

Admission

On admission her patient appeared to be laboring under difficulties, especially as regards breathing, her lengthy journey too, caused a degree of prostration. She appeared much younger than her stated age, she was plethoric but not cyanotic.

Both legs were oedematous, as was also the dependent portion of the back, and the skin over the right shin had fissured away, so that there was considerable leakage of serum. This spot was never itchy and she could assign no reason for its sudden rupture.

Pulse

The pulse was slow, 58 to the minute, easily compressible, and intermittent. A slight tortuosity of the radials, with a degree of hardness, suggested atheroma.

Heart

The heart sounds were weak, and the action slow. Auscultation revealed the presence of a very soft blowing murmur, accompanying the first sound at the apex. No other murmurs could be made out; and there was no increase of cardiac dullness beyond normal.

Lungs

Examination of the chest, showed that percussion was resonant both in front, and behind. The RTM was weak, especially over the lower parts posteriorly. Expiration was prolonged, and crepitant râles accompanied the jerky Inspiratory sound.

Urine

The urine which had been for some days previous to admission, scanty, was acid, Sp Gr. 1029, and distinctly albuminous.

Treatment

The treatment employed in this case, consisted in the first instance, of the administration of minute doses of the 1% sol. of Nitro Glycerine every two hours for the first 12 hours, and during the second 12 hours every four hours, and as was the rule there was a free supply of diluent drinks at the patient's bedside.

With the Nitro Glycerine alone, the urinary flow

DISEASE.

(X) Purgative

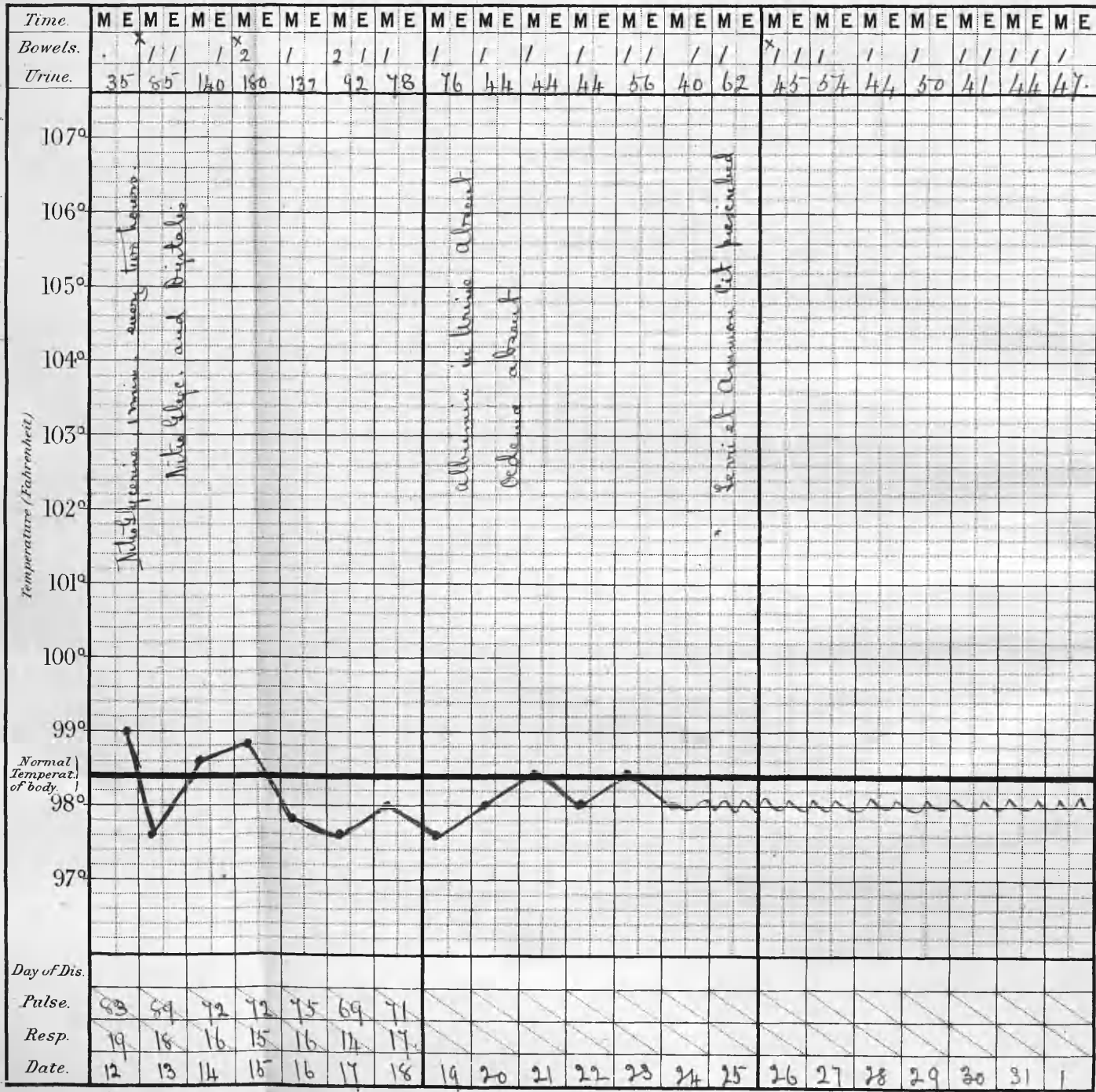
Notes of Case.

Name { *H. Taylor.*

Age

Diet

Case Book N^o



Day of Dis.

Pulse.	83	59	72	72	75	69	71																				
Resp.	19	18	16	15	16	14	17																				
Date.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1						

In admission - - 58
 - - - - - 15
 Date of admission
May

Result

DISEASE.

(X) Purgative

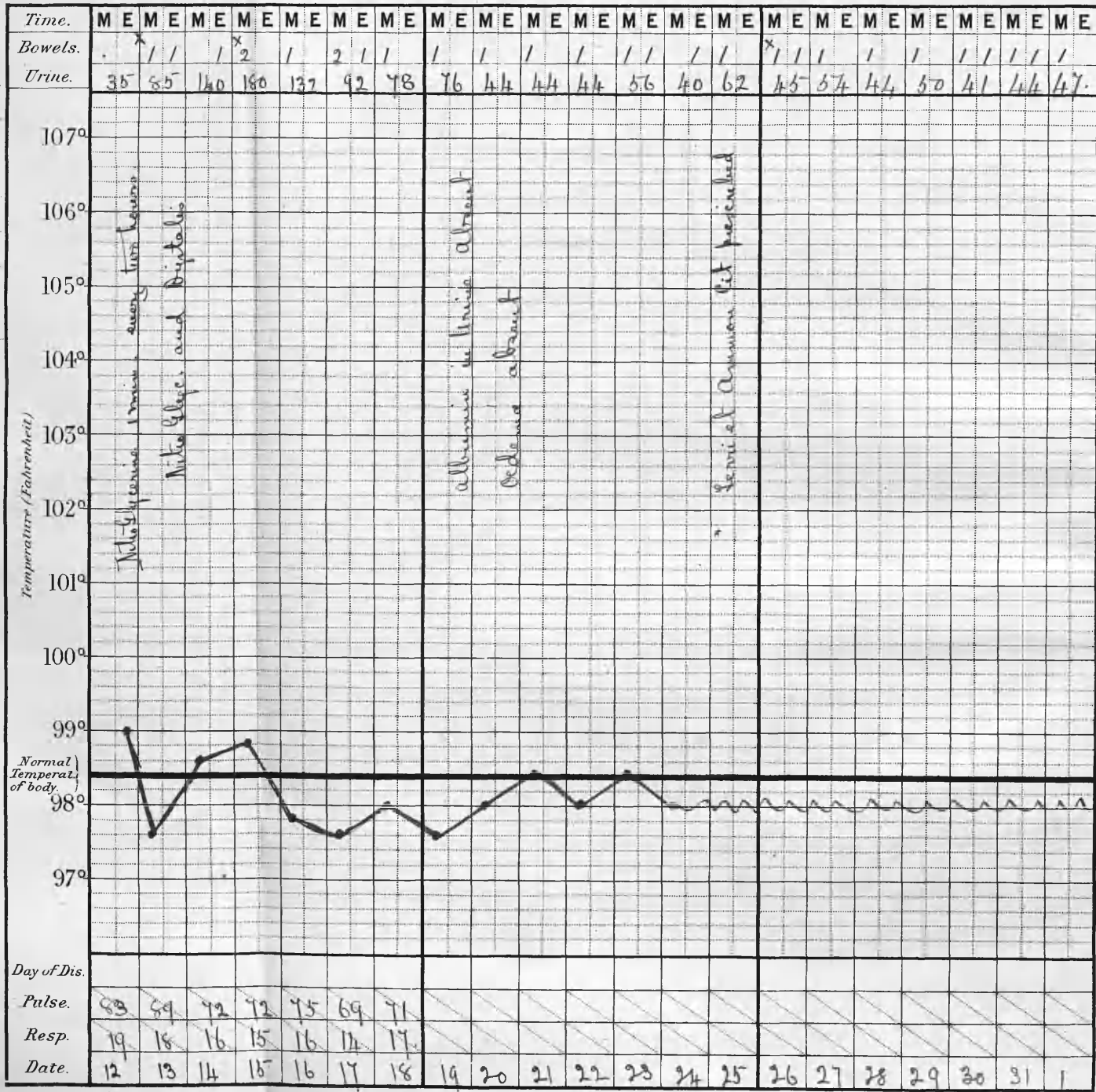
Notes of Case.

Name *H. Taylor.*

Age

Diet

Case Book No.



Day of Dis.

Pulse.

Resp.

Date.

5th admission - - 58
 - - - - - 15
 Date of admission.
May

Result

became manifestly large, no less than 85 having been collected.

After the expiry of the first 24 hours, Digitalis and Nitro Glycerine, were given in combination.

On admission the patient had to be propped up in bed, but on the evening of the next day, she felt inclined to do without the support.

Progress

14th. The improvement in the patients condition was great, all day long she had rested quietly, and large quantities of urine had been collected, in all 140 ounces.

The sore on the leg has ceased to hurt, and her legs had become quite soft, so much so that she mere grasp of the hand to lift her leg, left deep "kicks". Respiratory distress had vanished, and her cough was no longer annoying.

Albumin was still found in the urine.

From the above date indeed, the course of the case was uninterruptedly good.

19th No
Albumen

On the 19th Albuminuria was no longer one of her features of the case.

The zone on the skin was dry, and had healed perfectly.

The heart's action was steady, no intermission of the beats, and the apical murmur, only faintly audible.

The radial pulse, was full, not easily compressible, and not too rapid, with no irregularity.

REMARKS

The above case, reveals facts which by repetition here, would only reiterate what had been said ~~but~~ before, with regard to the salutary action in the first place, of the Nitro Glycerine, and secondly of the value of Digitalis and Nitro Glycerine, when combined, at the proper time.

The progress of the case, towards recovery was undoubtedly rapid.

The murmur, which existed, and which was partly due to the cardiac dilatation, but chiefly caused by endocarditis, the result of the Rheumatic attack, was before dismissal considerably altered, in that the dilatation was made amends for, and the quality of the murmur altered.

The cough was greatly benefited, and mucus

expectoration was made free, without the addition of a single "cough remedy", beyond the Digitalis and Nite Glycerin.

According to the patient's own statements, it would appear, that a large amount of serous leakage had taken place from the ear on the front of the leg. The solution of continuity in the skin, did not appear to have been caused by accident, nor by any previous eczematous patch, but rather by a natural effort, so as to act as a safety valve to the highly distended vein. In fact an open Southey's tube.

The patient was dismissed in 27 days, quite delighted at her rapid recovery, and when she took the following prescription

R

Tinct. Digitalis $\overline{3\text{iv}}$

Tinct. Ammon. Cit. $\overline{3\text{ii}}$

Sol. Nite Glycerin (1%) $\overline{m\text{xxiv}}$

Aq. Chloroformi ad $\overline{3\text{vi}}$

Σ. Descent spoonful twice daily. p. cib.

Case 7

The last case, I propose to deal with, is one of Renal mischief, treated also on the same lines as the four previous cases. Of the many cases so treated, during my fifteen months residence in the Perth Infirmary, I have selected these five, as being the most typical examples of the different ailments under consideration.

Jessie Cumming, aet 26. Millworker admitted July 6th 1890, complaining of shortness of breath, swollen face and legs; together with "beatings at the heart" after exertion.

Previous History

The Illnesses of child hood were not easily recalled. Scarlet fever was however certainly not one. She had been a millworker for 14 years, and had always had robust health, though irregular in the taking of her meals, no doubt, had given rise to passing attacks of "dyspepsia". Her catamenial periods were attended with perfect regularity, and with the average loss of blood.

Present Illness

Going back for a little, her present illness, might be said to have dated from

two months before her admission to the Infirmary. About that time she was confined to bed, with an attack of "inflammation in the back", the illness ~~to~~ was characterised by slight swelling of the eyelids, inability to take food, sickness, and severe headache. She didn't remember whether the urinary flow altered in any respect, &

This was at the time held by the patient and her mother, to be an attack of biliousness, attacks of a somewhat "remittent" nature, having seized her on previous occasions. The illness at the time was treated by the mother of the patient, by "bran poultices" applied to the back, and the administration of a dose of salts. The answer too compelled the patient to live on nothing but milk, beef tea! and sops.

After being in bed for a week she again resumed work, but whilst at work, she could take little or no food, was very costive, and frontal headache annoyed her greatly.

A week before admission her face began to be

noticeably puffy, her sleep was very much disturbed, and in the morning she felt very squeamish after taking any food.

The bowels had been very constipated, and the amount of urine passed very small. Headache was constant.

Admission

Physical State

On admission, the patient was seen to be in a bad way. She was a well nourished individual but her features were unshapely on account of the swelling about the face.

Pulse

The pulse was thin, hard, and rapid, number 118 to the minute.

Breathing was slow, and somewhat irregular, 14 respirations to the minute.

HEART

Cardiac examination revealed nothing abnormal. The area of dullness was not beyond normal limits. On palpating the heart, a strongish impulse was conveyed to the flat of the hand.

The heart's action was rapid, but the sounds were clearly shut off from the stethoscope, no murmurs or sounds of abnormality were present.

None of the cardiac sounds, were ~~char~~ characterized by accentuation. There was no cardiac enlargement.

LUNGS

No dullness was detected at the bases of the ^{chest} ~~heart~~ posteriorly, the R.T. was now and then unduly prolonged, but no rales were present.

The feet and legs were cold.

Urine

The urine was acid, had a high Sp. Gr. 1031, was highly albuminous, but not peculiarly coloured. Microscopically, a few epithelial casts, and an occasional granular cast, were found in the field. A few red blood corpuscles were also detected with Leucic and Ozonic ether, a very faint blue coloration was noticed in the specimen tested, which revealed the presence of blood.

TREATMENT

The first ^{things} done in the way of treatment was to place warm pouces all round the patient, and in consequence of the fatigue occasioned by her removal to the Hospital, a teaspoonful of Sal Volatile together with 2 minims of the 10% Solution of Nitro glycerine, were given to the patient shortly after her admission.

So as to allay the patient's thirst, skimmed milk, and Potash siphons, were placed at the bedside.

During the night, in addition of the heat applied to the superficies, minute doses of Nitro Glycerine, were administered by the mouth every three hours.

In the early morning of the next day, Compound Jalap Powder was given, and as a result the bowels moved three times.

During the first 24 hours, 45 ounces of urine were collected.

July 4th. The patient felt a good deal better. The headache was a thing of the past. The surface was comfortably warm, and a slight tinge of red, covered the previously pale cheeks.

Breathing was tranquil, and easy.

The pulse was rapid still, but not ~~so~~ nearly so thin and hard, it was a "well filled pulse"

The heart's action was not nearly so laboured, as the previous day's throbbing, was not nearly so pronounced, though still present.

DISEASE.

Time.	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
Bowels.	2	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
Urine.	15	85	115	119	96	89	80			65	48	61	40	51	56	71								
Notes of Case.	<p>Notes of Case.</p> <p>Name { Jessie Cummins.</p> <p>Age</p> <p>Diet</p> <p>Case Book No.</p>																							
Temperature (Fahrenheit)																								
Temperature (Centigrade)																								
Day of Dis.																								
Pulse.	84	82	85	73	75	69	64																	
Resp.	15	16	17	15	17	16	18																	
Date.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26			

Notes of Case.

Name { Jessie Cummins.

Age

Diet

Case Book No.

Urine: Nitro Glycerine every four hours

" " " " " "

Albumin abundant

" " " " " "

Albumin not so marked

" " " " " "

Diphtheria and Nitro Glycerine Combined

Foil and Chlorine in small quantities

Just Ferri Perchlor added

on admission 116

Date of admission. July

The urine collected, nearly doubled the amount of the previous day, 85 ounces was the amount.

It still contained casts, epithelial and granular, with red blood corpuscles. The Guic test indicated the presence of a minute quantity of blood in the urine.

Progress
Good.

On the third day, the patient had made good progress.

The Nitro Glycerine was being given every four hours, together with a free supply of skimmed milk. The pulse was full, regular, and numbered 85 to two minutes. The heart too was acting in an equable manner.

Edema in the face, was slight, and in the legs it was subsiding gradually.

Amount of urine 115 ounces, albumen still marked, no blood could be detected with the ordinary test, microscopically, epithelial and granular casts were noticeable, but no blood corpuscles.

On the 6th day. Digitalis and Nitro glycerine were combined, ten minims of the former tincture, with 1 minim of the latter three daily.

On the expiry of a fortnight's stringent dietary with milk, she was allowed after that time, a little dry toast, with sparing quantities of fish & chicken. Every third morning a dose of Epsom salts well diluted was also given to the patient.

In three weeks from the date of admission, 3iii of Tinct. Ferr. Perchlor. were added to the existing prescription of Digitalis and Nitro Glycerine, and the combination of the drugs worked admirably.

Dismissal

Her dismissal took place after a residence in the wards of six weeks duration, and her condition at the time of dismissal was as follows. The patient had become red checked, and stout. Her respiration was ^{free} from impediment.

Heart's action normal. Pulse Steady.

Urinary flow of average quantity, with a very faint trace of albumen in the specimen tested.

From the Infirmary she was sent to a Convalescent Home adjacent, where her medicinal treatment was kept up, and her diet still restricted.

Urine

after three weeks residence in the Convalescent Home, the urine was perfectly free from albumen, and no casts could be detected microscopically.

The specimens tested were three in number, and all showed an absence of albumen.

One sample tested was morning urine.

The second, urine voided after dinner.

And the third sample was taken from urine passed before going to bed.

Remarks.

The remarks on this case tend to show the value of Nitro Glycerine, when given in Bright's Disease, acting as it does by promoting free diuresis, thus supporting the views held by Russian and German writers on the subject.

The accompanying chart is sufficient in itself to show, the great increase in the urinary outflow brought about by the nitro glycerine unaided by any other drug.

There were tangible symptoms of poisoning by urea, such as headache, slow breathing, laboured ^{heart's} action, and nausea, but on the

second day of treatment, headache had completely disappeared, breathing was more regular, and conducted with ease, whilst the heart's action was more free, and the pulses much fuller.

The Nitro glycerine, had then in this instance opened the flood gates, and also had with benefit, lowered the previously heightened arterial tension.

The thin hard pulse, was replaced by a much softer and more full arterial vessel.

As a result of the opening of the kidneys^s up, to more free activity, elimination of effete matters such as urea, and obstructing epithelial casts, took place.

The sickening feeling was dispelled, headache went with it. The reinvigoration of the capillaries of the medulla oblongata, and of the lung tissue, soon made amends for the irregularity of respiration.

The administration of the absolute milk diet, no doubt too, helped considerably in lowering arterial tension, and in flushing the kidneys.

In this case as well as in others so treated, for similar lesions, no complaints whatever were made of the frequent doses of Nitro Glycerine.

Advantage
of
the Drug

One of the many advantages of the treatment by Nitro Glycerine, was the influence it exerted on the capillary circulation of the skin, in causing that important eliminatory organ to renew its wonted activity, a most important factor in Bright's Disease. The warm glow, spoken of earlier, see page 52, proves the value of the drug in that respect.

Moreover the further advantage of Nitro Glycerine is brought ^{out} when the use of internal astringents comes to be considered.

Prof. Semmola, Wiener Med. Blätter No 49, 1888, lays down a rule which is not however universally followed in his country at least, that in Bright's Disease, no manner of internal astringent should be given, and especially in reference to the Quinate of Iron, he points out that that drug, when prescribed, acts injuriously

ly constricting the capillaries of the skin, and so thwarting the activity of that important excretory organ the skin.

Amongst others Dr. Ralfe, points out that though direct astringents may be contra-indicated, the murate of Iron, on account of its valuable properties as an oxidising ^{agent}, would permit of its administration, and especially when there were signs of the existing edema disappearing.

By a combination of the Iron preparation, with the Nitro Glycerine solution, however, I venture to think the above difficulty is got over. The Nitro Glycerine more than counteracts the indirect influence of the Iron preparation, on the capillaries of the skin, and so a persisting activity of the skin is kept up.

A more important point than the above, is the found in the question, as to when Digitalis should be prescribed in Bright's Disease. Bright's Disease of a sub-acute or Chronic stage I mean.

In Bright's Disease, then, where arterial tension is already high, the immediate administration of Digitalis would lead to more evil than good consequences. Arterial high tension, would be made an hyperarterial tension, constriction of the Renal capillaries, would be followed by a decline in the elimination of urine, and the strain put on the left ventricle especially, would be highly injurious, especially were the strain to be long continued.

In an aged person especially, the above fact is important, as the rigid vessels, from pre-existing atheroma, would be apt especially in the brain, to yield under slight undue exertion, were an hyperarterial condition ~~to~~ provoked.

The rule laid down, in the treatment of Bright's Disease by Nitro Glycerine and Digitalis, was, in the first place to reduce arterial tension first, as indicated by the pulse, and after that had been effected, the Digitalis was added. The rule was invariably followed, and results confirmed the utility of the action.

The Tincture of the Perchloride of Iron, was added to the prescription, when it was deemed advisable to give the impoverished blood more tone; this was generally when oedema was fast vanishing.

The increased vigour, and appetites of the patients, together with the fact that albumin in the urine, became perceptibly lessened in amount, shewed in itself that the properties of the Iron were much valued by the weakened machinery.

Early the administration of Sulphate of Magnesia, regularly, was made an unvariable routine in all the cases under observation.

The "bricking" effects of the absolute milk diet, rendered such treatment necessary, and later on, the astringent effects of the Iron, made the administration of the laxative still more necessary.

R Tinct. Digitalis ʒii
 Tinct. Ferri Perchlor. ʒiii
 Sol. Nitro Glycerini (1%) m℥ii
 Aq. Chloroformi ad ʒvi
 S. ʒp hi in die.

Concluding Remarks.

Having considered the cases one by one, it is now my duty, to support the idea held forth, that for affections of the heart, whether the heart be primarily or secondarily affected: Nitro Glycerine when given alone, in the acute stage of the illness, is firstly a true sedative to the heart, and circulation; and, secondly, when the critical stage has passed over under treatment, it is an important second help to the best of diuretics and heart tonics Digitalis. As, by its physiological action, Nitro Glycerine, dilates the capillaries, and by relieving the waterlogged tissues, it gives the heart more freedom to carry on its valuable work.

In a healthy individual, the action of Nitro Glycerine, is known to bring about a dilatation of the capillaries, and in consequence an "hurry ing on of the circulation" [Murrell].
Whereas, when the general circulation is

weak, or when the heart is in a decreased state, an unfilled condition of the smaller vessels follows, or maybe a stasis in them, so that, the exhibition of Nitro Glycerine, by filling these unfilled vessels, or freeing them after engorgement, as the case may be, produces a state imitating the normal condition of affairs, by causing an equilibrium in the circulation to be set up.

This action of Nitro Glycerine, no doubt accounts for the fact, that in diseases involving the circulation, little or no ill effect, is complained of, after frequent dosage with the drug.

An instance of the above fact is given, in the case of Dr. Killop on page 23. When admitted he complained of dizziness and ringing in his ears, but, after a few doses of Nitro Glycerine, the annoyance left him; the improvement was due to the fact no doubt, of ^{that} an equilibrium of the intra cranial circulation had been established.

In Anemia, and allied conditions, where the capillaries are sparing in the quantity and

and quality of their blood supply, the utility of Iron combined with Nitro Glycerine is great, especially too, is the use of Nitro Glycerine, called for, when it is remembered that in Anemic conditions, especially Chlorosis, "arterial tension is high" [Sansom Lethsonian Lectures].

The combination I have frequently tried, in such Diseases, and have found good benefit result, especially in allaying the characteristic headaches; for headaches, this use of Nitro Glycerine, meets with the approval of Dr. Fothergill, in his "Practitioners Handbook."

In Cardiac lesions, Nitro Glycerine, was found invaluable, for the reason that it assisted Digitalis in its profusive efforts.

Digitalis has a tonic influence on the heart, and blood vessels, it contracts them. Too great tonicity in a case of Heart Disease with advanced arteriosclerosis, let me say, would not be desirable, "over tonicity" could easily be caused, by the indiscriminate employment of Digitalis, so that

in Nitroglycerine, here exists for Digitalis a born companion. In other other words, Digitalis gives tone to the heart, and vessels, whilst, Nitro-Glycerine acts as an inhibitory, by holding the reins of Digitalis, and so keeps that incomparable drug, from over doing its work.

The immense value of Nitro-Glycerine, in atheromatous conditions, was well brought out, in the following instance,

Nitro-Glycerine
in

Atheroma

A man, aged 55, was brought into the Infirmary one afternoon, he had ~~found~~ been found "lying in a fit"; shortly after admission he recovered somewhat. Arterial tension was high, and there was general atheroma of the walls of the blood vessels.

The subjective symptoms were, dizziness, and pain in the head more or less persistent. There was no albumin in the urine.

The minimum doses of Nitro-Glycerine were administered every three hours, for 12 hours, and the result, was all that could be desired. Twelve months before this the man had had a

"brain shock". The patient was immediately after dismissed, but was advised to keep a small bottle of Nitro Glycerine always about his person, which he did. Now him repeatedly on the sheets, and he spoke of having averted other attacks, by the use of his "magic water": the solution was clear. He took sips, and by constantly keeping the arterioles dilated, he kept up an antagonism to the existing Strain.

When Renal complications had arisen secondary to Heart disorder, the combination of Nitro Glycerine and Digitalis was also found to act in a most beneficial manner. Digitalis drove on the circulation, Nitro Glycerine, held the blood gates open, and in consequence free diuresis resulted.

In Chronic Bronchitic affections, where Cardiac Dilatation had resulted, in consequence of the backward pressure, the combination of Digitalis and Nitro Glycerine, also worked well.

The cardiac chamber was lessened, dry being drawn together, and the cough and expectoration

were improved, without during the whole course of the illness, calling in the aid of a single "cough remedy". Digitalis and Trichlo-glycerine were permitted to do the repairs, unaided by Ipecac. Squills, Ammonia, or Camphor.

Let me however, detail at more length, the modes of treatment employed, in the different cases previously given.

Firstly then, in the acute or urgent stages, that is, where dyspnea was great, on account of cardiac or pulmonary embarrassment.

The routine, employed was the administration of the 1% solution of Trichlo-glycerine, in one minim doses, at stated intervals; and last but not least, milk and aerated water were kept at the patients side.

Catharsis was invariably provoked, soon after admission of the patients.

What was aimed at in the cases so treated, was, to give the flagging heart, periods of rest, and by so doing, permitting it to gather up

fresh energies, for the efforts it was called upon to perform.

For instance, the pulmonary and renal circulations were at a stand still, but the exhibition of Nitro Glycerine, dilated the arterioles, which were with the capillaries the obstructing barriers. Unless these obstacles were cleared, the vis a tergo would be useless. The moment however that the choked vessels were freed, the heart's action became more free, and increased in power appreciably. As proved by the quality of the pulse, on the day after admission, and by the steadied beat of the heart.

Then the heart itself, above all organs, to act harmoniously, must have its own share of nourishment; in the water logged condition it is however practically asphyxiated, as the coronary vessels share in the general stagnation. Whenever the Nitro Glycerine exerted its action, the cardiac muscle would receive a more healthy, and better oxygenated blood.

supply, to feed it on to its work.

The Nitro Glycerine, acts in a double manner in such a case, in the first place, the circulation is hastened, and has an impetus conveyed to it, and, secondly, this hurrying on, relieves the the heart of its former burden. And so, even in its weakened condition it grows comparatively speaking strong, because less expenditure of energy is required from it.

After its long oppression, the heart, is not slow to take up a new lease of life, provided that a suitable diet is provided for the stomach, to replenish the blood in its improving ~~and~~ aeration.

The above facts, have been justified by my experience of the drug; and only in one case that of T. Gouinjal see page 33, did the routine treatment fail. The cause of failure having been due to the fact, that cardiac adynamia was absolute, as no manner of coaxing could bring back the heart, to perform its proper calling.

After the Nitro Glycerine alone, had been adminis-

tered for 24 hours, wonderfully marked improve-
ment was noted in the condition of the patients.
The diuretic action of the medicine was marked.
Whenever it was noticed that the cardiac action, was
more free steady, and that in consequence the circulation
was more free, Digitalis was exhibited along with
Nitroglycerine, and the two drugs worked harmon-
iously in unison.

Such a combination, to my mind, is an ideal one
Digitalis pries loose the heart and blood vessels,
Nitro Glycerine keeps the pathway clear, so that
the fruits of labour may not be lost.

In Dr. Lounsbury's case, as already mentioned, see
page 33, three aids had to be called in.

Nitro Glycerine, after fair trial, refused or was unable
to procure an outlet for the resulting force exerted
after the use of Digitalis. Digitalis indeed
was found to do more harm than good: be-
cause exerting its influence as it did, on the
ventricles, in this case the right being the chief
sufferer, a backward flow of venous blood

was forced through the incompetent tricuspid valve. The action of Digitalis in such a case is pointed out also by Dr. Sanson, Lect. Lectures.

The auxiliary aid resorted to here, after the failure of Nitro Glycerine ^{and Digitalis}, separately in the first place, and secondly combined, was Venesection.

Dr. Broadbent, in his Lumbian Lectures on "Structural Diseases of the Heart", see British Med. Journal page 686, March 28 1891, practically gives it as his opinion that Venesection is never required, and that the application of 6 leeches over the hepatic region followed by mercurial purgation will attain the end in view as well, if not better than Venesection.

Dr. Broadbent emphasises the fact, that after venesection, the heart is unable to gather itself together for the calls made upon it. I would humbly hold the opinion, however, that if when venesection is followed up by the administration of Nitro Glycerine

The heart is buoyed up, and gathers strength
see page 68, on account of the relief afforded
it, by the action of the Nitro Glycerine.

Dr. Sanson and others, on the other hand, say
that especially in urgent cases of tetanus in-
competence is Tenesection called for.

Not emphatically, was resection followed
by surprising results, in U. Goungoh's case
which see.

Digitalis and Nitro Glycerine, in those instances
where there was no organic valvular disease,
acted on the apathetic lungs in a most bene-
ficial manner. Expectoration was made free,
the Nitro Glycerine, urged the sluggish mucous
membrane of the ultimate tubules of the lungs
to freshened activity, and a free catarrh was
induced, so that the refuse in the form of a
frothy spit was readily got rid of.

In more acute Bronchitic affections, Nitro-
Glycerine was often prescribed with success
together with popular cough remedies.

In certain distressing cases of disease at the mitral valve, some advocate the use of morphia, but I think Nitro Glycerine either in small repeated doses, a minim in each dose, or even in two minim doses, is a better drug to employ for the relief of the patient, and also, in giving it, one is not required to watch the course of events, with the same critical eye, as when morphia is given.

In cases of Heart Disease, with irregular Digitalis and Nitro Glycerine, I have found of great value, after a few doses of the combination a patient will invariably say, that his or her heart is beating much more "steadily".

Lastly in dealing with Heart affections, Angina Pectoris, was also treated ~~with~~ with gratifying results, by Nitro Glycerine, and attacks were thwarted times without number, by the timely aid of Nitro Glycerine.

Iodide of Potassium has had much said in its behalf, for the relief, or even "cure"

of this distressing complaint.

Its properties as a "curative" agent, may be great, but its slowness of action, must cause it, to step back in favour of Nitro Glycerine. In the Peter Infirmary wards, I tried a combination of the Iodide with Nitro Glycerine, and attacks of Angina Pectoris, were dischelled, but the latter drug I think did more towards relieving the patient of his anxious moments than the former; although by long continued use, I can quite understand that the powers of the Iodide would make themselves appreciated.

As a diuretic in Bright's Disease whether acute or chronic, Nitro Glycerine is of great value. The notes and chart of the case of Jessie Cummings will prove my remark.

Dr. G. Leontovsky a Russian physician, treated six cases of Chronic Bright's Disease, by means of tablets of Nitro Glycerine ($\frac{1}{100}$ gr) in each, four times daily, and increased the dose till ten were taken. From the results obtained he claimed

that the drug was a valuable diuretic, and secondly that the absolute, and relative amount of albumen in the urine was lessened. The value of Nitro Glycerine as a diuretic, I can confirm, but have inclined still to believe, that the diminished amount of albumen, was a relative diminution, and not as would appear an absolute one.

Were it true that the albumen was absolutely lessened, the puzzling question of high arterial tension being the cause of albumenuria, would be settled. On the other hand it has been found that gradually increasing the dose of ~~the~~ Nitro Glycerine, has caused a decided increase in the amount of albumen [Practitioner Sept. 1865].

Prof. Roehrbach however, be it said, confirms the opinion that Nitro Glycerine, in small doses, swells the amount of daily flow of urine, and further lessens the percentage of albumen. The diet not being specially restricted

The Tincture of the Muriate of Iron, I found produced very marked benefit. First the patient's general looks improved, and secondly the albumin in the urine was by degrees diminished in amount.

Prof. Grainger Stewart. Brit. Med. Journal Aug 16 1890. p 391. mentions two drugs only which he has found useful in diminishing the ~~of~~ amount of albumin, the one being the Tincture of the Muriate of Iron, and the Hydrochlorate of rosaniline-puchsin.

But the former I should say was the preferable remedy, acting as a much required tonic, and at the same time tinct astringent.

So long then, as Nitro Glycerine has got to work in a case of Bright's Disease, and so long as its action is made use of it stands to reason I think that ~~the~~ Uræmia and its dangers will be kept at a safe distance.

In fact, even when Uræmia did set in in case, I would sooner persevere in prescribing

With glycerine, than in resorting as too often is done, to the help of the feeble hypodermic needle containing morphia.

I have said enough already, in my poorly expressed ideas, but I have no doubt but that in better hands, the value of Nitro Glycerine will be realized, when necessities for its use arise.