THE COMPOUND SPHYGMOGRAPH.

By A. T. KEYT, M.D.

THE cut below represents my improved compound sphygmograph. The mechanism consists essentially of two sphygmographs of transmission and a chronograph combined in one apparatus, and all writing on the same smoked slide, the latter being regularly propelled by clockwork.

The sphygmographs are uniform, and constructed as follows:—

The base for receiving the movements is an oblong receptacle closed below by an elastic membrane, and opening above into a transmission tube. The latter is of convenient length, usually twenty-four inches, made up of alternate sections of glass and flexible tubing, and communicating by its opposite end with the vertical branch of a **T** passage. The horizontal branches of the **T** communicate each with a small chamber. Over one chamber is secured a graduated glass tube, over the other a delicate elastic disc; the chambers and passages are filled with *pure water*; and to provide for expulsion of air from the disc-chamber, a small passage connects its upper part with the index-chamber; a stopcock opens and closes this passage. At the junction of the **T** is placed a 3-way stopcock, which, according to its position, directs the movements to the index-tube or the disc. From the centre of the disc a pin arises, whose point is lodged in a small hollow cone depending from the writing lever, and to which it is attached by a sliding clip. The lever is light, six inches long, and its axis is pivoted to an adjustable plate. The pin-socket is usually placed half an inch from the centre of the axis. The lever's point just lightly touches the recording surface. A reservoir with a depending ampulla and stopcock conveniently regulates the supply of liquid to the apparatus. The entire apparatus, except the bases, which are freely movable in any direction, is firmly secured to suitable supports.

The basal and disc membranes are each adjusted and maintained at a standard tension by means of a proper screw device, and the standard tension for each is determined by a definite and easily applied formula. By these means uniformity in the action of the membranes is secured.

The graduated glass tube serves as a diverticulum for the liquid displaced from the base as the latter passes down upon the organ whose movements are to be observed. At the same time the liquid column displays the movements to the eye, indicating their form, and measuring with precision their amplitude and the pressure at which they are best developed. Thus the index-tube is an interesting and indispensable part of the instrument. (It is placed erect when the instrument is in use, and turned down for convenience when it is not in use.)

The chronograph is essentially a watch provided with a mechanism for marking the divisions of time. It is a complete instrument, very convenient, and its record of seconds and fifths is entirely reliable.

Two sphygmographs are conjoined in one instrument, because the arrangement is quite convenient, and so extends the application that a simple sphygmograph in comparison with this combination appears of very small value.

This compound instrument answers all the purposes of any sphygmograph, and in addition is adapted to a great variety of physiological and clinical uses. It traces in a perfect manner the pulsations of the heart and of the different arteries, of the fontanelles, of tumours, the movements, respiration, muscular contractions, &c. By means of the index-tube it exhibits these movements to the eye; by means of the chronograph it shows their exact time relations; and by means of the double arrangement it traces two movements, as of the heart and an artery, simultaneously, showing their relations to each other, and securing all the advantages of such a record. It is used with great facility, and executes the work with which it is charged with an extreme fidelity.

Cincinnati, Ohio.

CASE OF LABOUR, WITH ALBUMINURIA.¹

By STANLEY HAYNES, M.D.

ON July 24th, 1878, at 10.30 P.M., without having had any previous knowledge of the patient, I was called to attend Mrs. P—, a gardener's wife, a primipara, aged twenty-six. A nurse had arrived just before I was sent for (about half an hour previous to my attendance), and been so alarmed by the condition of the patient that she had immediately given a glass of hot brandy and water and said a doctor must be obtained directly. On my arrival the patient looked as if she had had serious hæmorrhage, but there had not been any. The face had a deadly pallor, the nostrils were contracted, the eyelids half closed and twitching, the breath was cold and breathing slow and superficial, and there was a cold perspiration on the forehead; the pulse was barely perceptible, and slow. The patient was calm and sensible, said she felt very well, and was quite unaware of there being anything unusual. She calculated she had gone between seven and eight months. There had not been any convulsions. Labour had begun about 4 P.M. with ordinary prodromata, and pains had not become regular or frequent until about 7 or 8 o'clock, when the liquor amnii, in apparently small quantity, escaped, and the patient had continued about her household vocations until then. There was no vomiting. The patient had not complained of illness or debility. (Neighbours subsequently stated she had been very pale during her pregnancy.)

On examination there was not, and had not been, any hæmorrhage; the external genitals, the thighs, legs, feet, and arms felt cold, like those of a corpse, and the ankles were

¹ Read before the Worcester Medical Society, April 28th, 1880.

oedematous. The abdomen could not be termed warm. The warmest part of the body was the thorax, and that was of low temperature. I had not taken a thermometer. The os uteri was of the size of a shilling, dilatable; the presentation was left occipital anterior, and the pains came on about every ten minutes, were slight, and appeared almost unknown to the patient. Brandy and water was repeated in frequent small doses, with one-drop doses of laudanum, and heat, applied to the feet, calves, thighs, and abdomen, producing warmth where applied, but very little improvement to the circulation or respiration. The pains gradually became more frequent, and the os slowly enlarged. At about 2 A.M., as the general state of the patient continued as described, I sent for my friend, Dr. Thelwall Pike, in consultation. On his arrival at about 3 o'clock he approved of the treatment so far, agreed it would be better to watch and wait carefully unless there should seem reasons for expediting the labour, and regarded the case with anxiety. Soon after he left the pains became stronger, the labour advanced rapidly, the patient remaining cheerful and suffering very little even during strong expulsive efforts, and a recently dead female child was born. After a short interval pains recurred, and the placenta came away with very little, and that pale, hæmorrhage. The patient expressed herself as very comfortable, and soon became warmer, and I left her doing well at about 8 A.M. She made a good and rapid recovery, and seemed surprised I had been anxious about her.

When the lochia had ceased the urine became almost solid on boiling; it did not contain any casts or crystals. There was marked leucocythæmia. Under chalybeates and potassic chlorate she speedily improved, and assumed a natural but sallow appearance, and the albuminuria steadily diminished and ceased. On Sept. 3rd (six weeks after parturition) she was so far recovered she did not wish for further attendance. I advised recourse to the treatment in the event of relapse or of pregnancy.

On March 31st, 1879, eight months after confinement, I was asked to see her again, and found leucocythæmia and albuminuria, and prescribed iron and potash as before. She took this for a month only and recovered. In August she had a living child at full time, after a natural labour, and without the attendance of a medical man. Since then she has continued well.

Malvern.

A Mirror OF

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

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. Proœmium.

ST. MARY'S HOSPITAL.

TWO CASES OF ANTISEPTIC SURGERY.

(Under the care of Mr. HAYNES WALTON.)

FOR the following notes we are indebted to Mr. Augustus J. Pepper, F.R.C.S.

CASE 1. Strangulated Umbilical Hernia; Opening of the Sac; Recovery.—T. D—, aged sixty-two, who had been a heavy drinker for the greater part of his life, having "taken to gin" when he was thirteen years of age, was admitted on Jan. 17th, 1880. Fifteen years before, a very small navel rupture was discovered, which gradually increased in size. On more than one occasion incarceration occurred, and the gut could only be returned by taxis under chloroform. The last time this happened was a week before final strangulation. At the time of the operation, the hernia, which was as large as a billiard-ball, had been strangulated for four hours and a half; it was very tense, partly resonant and partly dull on percussion. Vomiting had been frequent. Taxis having failed, it was decided to place the patient under chloroform; this was done, but reduction by manipulation could not be effected. Under the strictest antiseptic precautions, Mr. Walton then proceeded to divide the constriction, which was found to be situated in the neck of the sac. The hernial sheath contained about two ounces of

blood-stained serum, and a coil of small intestine, of a deep-red colour from congestion. Three sutures were used to close the wound, but no artificial drainage was employed.

On only one occasion did any elevation of temperature occur—namely, on the third day after the operation, when it rose to 102° F., but quickly subsided on removal of the sutures. The discharge from the wound was quite aseptic throughout the six days the gauze dressings were applied. At the end of this time only a superficial sore remained, and this got well with simple detergent lotions. The aperture leading from the hernial sac into the abdomen seemed to be obliterated by the time the patient was convalescent.

It may be stated that there was also a large double inguinal hernia.

CASE 2. Blade of penknife in knee-joint; removal; recovery.—C. H—, aged twelve years, on Dec. 29th, 1879, ran a penknife which he had carried open in his pocket into his thigh just above the knee, but the nature of the injury was only suspected the following day, when it was found that the blade of the knife had been broken off close to the hinge. The wound healed by first intention, but considerable pain and swelling in the knee-joint ensued, and on the eighth day after the accident Mr. Walton saw the case, and detected a foreign body projecting beneath the skin immediately above the left patella.

On Jan. 8th an incision was made under the spray, and the blade was removed. Some little difficulty was experienced as the blade of the knife was wedged beneath the patella, necessitating a free incision into the quadriceps extensor muscle.

The wound healed rapidly without suppuration. For a few days slight exudation into the joint could be detected, but the temperature remained normal throughout, with the exception of a rise of two degrees on one day coincidental with an attack of urticaria (not confined to the limb). The operative incision was closed by a single suture; no drainage-tube was used.

The antiseptic dressings were discontinued on the 20th, and on the 23rd the joint was encased in a plaster-of-Paris bandage. No pain or inconvenience was experienced when the lad was allowed to walk about on the 27th.

The blade of the knife was an inch and a half long.

MANCHESTER ROYAL INFIRMARY.

CASE OF LOCOMOTOR ATAXY WITH ARTHROPATHIES.

(Under the care of Dr. DRESCHFELD.)

B. W—, aged fifty, mechanic, married, with no history of either syphilis or alcoholism, had always enjoyed good health till fifteen years ago, when the first symptoms of locomotor ataxy came on. These symptoms consisted in the inability to walk in the dark, and in the presence of lightning-like pains in the legs, in consequence of which he was soon obliged to give up his work. Seven years ago the pains in the right thigh, without losing their lightning-like character, became suddenly much more persistent, and obliged the patient to take to his bed, and to remain in bed for a month, when they left him as suddenly as they came. On trying to get up he found now that his right leg was much shorter than the left, and that there was a projection on the right hip, which occasionally would suddenly disappear with a peculiar noise. Any movement of the thigh or leg would, however, make this projection very soon reappear. Three years ago the left knee began to give way without any exacerbation of pain, or any sudden swelling of the joint, and very gradually assumed its present position, that of extreme backward dislocation. In consequence of these joint affections, walking, which was already difficult before, became only possible with the help of two sticks. The general health of the patient had remained very good throughout, his eyesight had been bad for some years, but he had never suffered from vomiting or any bladder troubles.

On admission patient looked well and healthy; the thighs were considerably wasted, but the rest of the body was not emaciated. The chest and abdominal organs were perfectly healthy. There was no affection of any of the cerebral nerves, except marked white atrophy of both of the discs. The pupils were contracted and reacted to accommodation, but not to light. The upper extremities were perfectly normal. The lower extremities showed the chief symptoms, and here, as regards (1) sensation, there were diminution of