entiate the rheumatic and syphilitic cases. It is very rarely that this distinction cannot be made with certainty, though sometimes it may be more difficult to differentiate the atheromatous and syphilitic cases. One reason for this contrast is the association of syphilitic aortic incompetence with angina pectoris. In both groups of non-rheumatic patients this was a common finding; frequently, indeed, it was a main presenting symptom, and occurred in 40 per cent. In those with syphilis, nocturnal angina was not uncommon, and often the pain lasted for longer than the usual angina of effort. On the other hand, angina occurred in less than 5 per cent. of the rheumatic patients. These were mostly men with an average age of 45, and all but one had aortic stenosis.

SUMMARY

In a series of cases with disease of the aortic valves, the condition was due to rheumatism in 200, to syphilis in 55, to atheroma in 20, and to all other causes in 21 cases.

Out of every six rheumatic cases, roughly, three had aortic incompetence and mitral stenosis, one had both with aortic stenosis as well, one had aortic stenosis and incompetence, and one had aortic incompetence alone. When there was no mitral disease there were two men for each woman; when there was mitral disease there were two men for every three women. They came under first observation at all ages, least commonly before 10 or after 50. There was so little difference between the ages of those with and those without aortic stenosis that its presence must depend on the severity and nature of the attack rather than on the length of time that had elapsed. Pure

aortic stenosis was rarely found, and, as far as could be judged from the pulse pressure, the stenosis was relatively unimportant compared with the regurgitation, even where the signs were well marked.

Among the syphilitic cases there were three men for each woman, nearly four-fifths being between 40 and 60. Aortic stenosis was rarely or never present, and the average pulse pressure was much greater than in the rheumatic cases (110 instead of 70).

Nearly all the atheromatous cases were men, between 50 and 80. Aortic stenosis was more important and more frequently present, the signs of regurgitation being often absent.

Auricular fibrillation was present in 30 per cent. of those who had also mitral stenosis, in 8 per cent. of the rheumatic cases without mitral stenosis, and only rarely in the non-rheumatic group.

Left ventricular preponderance was found in about half the electrocardiograms of those with pure aortic disease, normal limits being found in the remainder. The T waves were inverted, most often in lead I, in about one-quarter of the rheumatic cases and in about half the others.

The prognosis was enormously better in the rheumatic group. The average duration of life after the development of aortic incompetence was probably twenty years, excluding those who died quickly from active rheumatic carditis. In the syphilitic group, on the other hand, it was not much more than two years after the development of symptoms, few patients living for eight years.

We wish to thank Dr. Parkinson, and the physicians of Guy's Hospital, for allowing us to refer to patients under their care.

A SIMPLE TECHNIQUE FOR PHOTOGRAPHY OF PATHOLOGICAL SPECIMENS

BY

C. J. C. EARL, M.R.C.P.I., D.P.M.

FIRST ASSISTANT MEDICAL OFFICER, CATERHAM MENTAL HOSPITAL

The importance of photography as a means of recording morbid anatomical specimens is increasingly recognized. The photograph is accurate, impressive, and easily interpreted; a good photograph with a few words of description gives a better idea of a specimen than does a whole page of descriptive matter alone; moreover, photographs are readily comparable one with another. The only difficulty is to obtain sufficiently good photographs. Technique is the essence of photography, and the busy pathologist or physician has little time to acquire it, while the professional photographer is severely handicapped by his ignorance of what is required. In these circumstances the following description of a simple technique is perhaps opportune. The essence of the method is standardization and the elimination as far as possible of the necessity for technical skill.

Apparatus

Camera.—Any camera capable of taking close-ups and with an aperture stopping down to $f/45$ will suffice; we use a Kodak x -ray reducing camera, and find it quite satisfactory. The stand should be adjustable for height and be capable of inverting the camera in order to take pictures directly downwards.

Illumination.—This is standardized by using a wooden box $20 \times 20 \times 15$ inches. In the place of a lid a wooden shelf $4\frac{1}{2}$ inches wide is fitted round the top of the box on the inside; this should slope downwards at an angle of 60 degrees from the horizontal, leaving an opening 11 inches square in the centre. This "roof" rests on the edges of the four

sides and is instantly removable. In each of the four upper corners of the box a 100-watt frosted bulb is fitted, so placed as to be invisible from above when the "roof" is in position. The four bulbs are wired in series, and the box fitted with a switch and a wall plug; each bulb may be independently controlled by its own switch, but this is unnecessary. In one side of the box a door of "lift-out" type, 14×8 inches, is provided. The sides of the box and the under side of the "roof" are painted white, the floor being a dull neutral colour; the upper surface of the "roof" is painted matt black.

The remainder of the apparatus consists of a straight-sided glass bowl 10×4 inches, a circle of ebonite of slightly smaller diameter than the bowl, and four wooden blocks each $1 \times 2 \times 4$ inches.

Preparation of Specimens

To prevent spoiling the picture by glistening of the "high lights" the object is photographed under water, and for this reason specimens are best fixed by Kaiserling's method before being photographed. This obviates the risk of blood staining the water, and the specimen is unharmed by its immersion should it be required for permanent preservation later. The specimen is immersed in Kaiserling's solution "A" as soon as possible after death, and left for a week or more. A thick bed of cotton-wool is always used to ensure that the specimen is not distorted by its own weight, and it is sometimes a good plan to pin a specimen on a piece of board in roughly the position in which it is desired to photograph it. Membranous structures such as heart valves, cyst walls, or fascial bands are carefully coaxed into the required position by packing with cotton-wool, while brains are suspended in the solution by a string passed beneath the basilar artery. The solution requires to be changed after the first twenty-four hours.

After fixation any packing, etc., is removed, and the specimen placed in water. In the great majority of cases it sinks unevenly or not at all, some unimportant portion obtrudes itself into prominence, and many unsuspected fatty and fascial tags float upwards to spoil the outline. The

various faults are noted and the specimen removed. A number of leaden strips of from one-third to one-half of an inch in width, and from two to six inches in length, notched at intervals of half an inch along their sides, are kept ready, and one of these of suitable size is now stitched firmly across the under side of the specimen. Two good stitches are usually enough, and care is taken that they shall not be visible in the picture. The leaden strip serves to sink the specimen, and is sufficiently malleable to be applied closely to its under-surface and to be further bent after the specimen has been stitched on, should this be required to improve the pose. The strips should not be left in position for more than an hour or so, as the lead reacts with the solution and stains the specimen. As much redundant tissue as possible is cut away, preferably after stitching in position, as some may be needed to hide the ends of the leaden strip. Fatty tags are best trimmed away under water.

Photographing

The glass bowl is filled with water and the ebonite disk immersed in it. The bowl is placed in the centre of the illuminated box, supported on the wooden blocks, whose dimensions allow of three variations in its height from the floor of the box. The camera is then inverted over the opening in the roof of the box, and the bowl manoeuvred until its centre is visible in the centre of the viewing screen. If the room is darkened no focusing hood is required—an immense convenience. The specimen is now introduced through the door in the side of the box, and is carefully centred on the viewing screen. The camera is adjusted to such a distance that the object, when in focus, does not quite fill the screen. Some care has to be taken to ensure that the uppermost surface of the object is exactly horizontal, otherwise serious foreshortening distorts the picture. A ruler, so placed that it appears at the edge of the picture, is an added refinement.

For most objects the lighting as described is almost ideal—evenly diffused and without harshness or shadow. In the case of a light-coloured object having a convex surface, such as a brain or a fatty heart, so much light is reflected on to the sides that these become over-illuminated in relation to the upper surface. To correct this a paper collar is fixed around the outside of the bowl, its height being adjusted until the top light is definitely greater than the side light.

Fresh specimens are best taken immersed in kerosene. No weights are required, and there is little tendency to clouding of the medium by leakage of blood. This risk is minimized by rinsing the specimen in kerosene before placing it in the bowl, and by very careful handling during posing. Kerosene does not spoil specimens for subsequent preservation, but its extreme inflammability is a very serious objection, and rigid precautions should be observed if it is to be used.

When the pose is quite satisfactory the highest point of the object is sharply focused, the aperture set at $f/45$ and the picture taken. The length of exposure varies with the aperture, the lighting, and the type of film or plate. These three being standardized, the optimum time is easily found by experiment. With our illumination ninety seconds is correct.

Choice of Film.—We use Kodak panchromatic films for nearly all objects; no filter is necessary, and very good colour values are obtained. The films must be developed in total darkness. For cut slices of brain we use Kodak commercial film, but these slices are not easy to take. The best method is to adjust the paper collar so as to cut off all side light and take at $f/22$, with a corresponding decrease in exposure. Brilliant differentiation between grey and white matter is obtained by taking a rather thin negative and printing on "contrast" paper.

The apparatus may be used to photograph charts or diagrams if these are drawn in black ink and pinned or (better) pasted on stiff card and placed on the bottom of the box.

The method as described has the advantage of simplicity. Little practice is required, and no photographic skill; the apparatus is cheap and easily handled, while the results are at least as good as those obtained by far more elaborate and expensive methods.

My best thanks are due to Miss D. Coulson of Tooting Bec Hospital for her ready assistance in perfecting the technique.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

AN UNUSUAL CASE OF INTUSSUSCEPTION IN AN ADULT

The following is a report of a case in the Neyyoor Hospital, Travancore, S. India.

A man of the coolie class, aged 30, was admitted, complaining of abdominal pain, loss of appetite, and emaciation. He was very thin and poorly nourished. His complaint had been present for two years, and during the last year he had been unable to work. His diet, as in the majority of the poorer classes of Travancore, consisted mainly of tapioca, rice-water, tamarind, and red chillies, with occasional small quantities of fish. He was very constipated, but did not complain of blood or mucus in the stools. Though no mass was palpable, a point of definite tenderness above the umbilicus, and a tendency of the pain to be increased on taking food, suggested gastric ulcer.

Laparotomy was performed, and a large enteric intussusception, involving 3 feet of upper ileum, was discovered. It resisted all attempts at reduction, and had to be resected, the ends being united by side-to-side suture. The intestine proximal to the intussusception was hypertrophied, and there was slight congestion of all the small intestine.

The patient did well, passing motions on the second day after operation. On the seventh day, however, he complained of severe colicky pains in the umbilical region, and on palpation a mass could be felt, which became more tense and prominent with each spasm of colic. Fearing a second intussusception, I opened the abdomen under local anaesthesia, and found the anastomosis in good condition, but, proximal to it, a large intussusception, involving about 4 feet of small intestine. It was easily reduced, but was remarkable in that it was doubly intussuscepted—a small intussusception within a larger one. After reduction the movements of the gut were observed, and violent and irregular peristaltic waves kept passing along the gut, as if attempting to repeat the performance. The mesentery was shortened by a series of inter-lacing sutures, and the abdomen closed. Tincture of belladonna, in 10-minim doses, was given thrice daily, with cod-liver oil emulsion and fruit juice as part of the dietary. The patient made an uneventful recovery, and put on weight. One month later he was well, and without signs of recurrence.

This case was characterized by several unusual features. It occurred in an adult and was of the enteric variety. There was no sign of a polyp, growth, or anything else likely to cause the condition. Even after extensive resection of bowel the small intestine seemed determined to revert to a state of intussusception.

Perrin and Lindsay, in the *British Journal of Surgery* (1921, ix, 46), give the relative frequency of the different types as follows:

	Per cent.		Per cent.
Ileo-caecal ...	39	Retrograde ...	0.5
Ileo-colic ...	31	Meckel ...	1.2
Enteric ...	6	Unclassified ...	14.7
Colic ...	4.7	Appendicular ...	0.2
Compound ...	0.1	Jejunum-gastric ...	0.2

The figures of this hospital are of interest. Fifteen cases have been operated on in the last four years. Their ages were as follows:

	Cases.		Cases.
Under 1 year ...	1	20 to 30 years ...	5
1 to 10 years ...	1	30 to 40 years ...	5
10 to 20 years ...	3		

The types were classified as follows:

	Cases.		Cases.
Ileo-caecal ...	5	Enteric ...	3
Ileo-colic ...	6	Appendicular ...	1

Infantile intussusception is very rare in this country, and Western surgeons will be struck by the incidence in children as compared with Britain, where intussusception is almost entirely confined to them. One