time numbers of tree squirrels and rats were dying in Kirkee. On September 1st, 1906, the first case occurred in the bazaar. On September 5th it reached the lines of the followers; who, on the following day, were ordered to come up to hospital for inoculation with Haffkine's serum; out of 1,312 men, women, and children on the list, 1,300 presented themselves, and among them 5 subsequently developed plague, of whom 4 recovered and 1 died. Of the 12 uninoculated, 6 contracted the disease, of whom 3 recovered and 3 died. Among the civilian element inoculation was optional, and, for the most part, they did not seek medical advice if attacked. Out of 5,640 people, 45 volunteered for inoculation, and none of them contracted the disease. Of the remaining 5,595 (uninoculated), 383 subsequently suffered from plague, of whom 123 recovered and 260 died.

Influence of Haffkine's Serum upon the Incidence of Plague at Kirkee.

Comparison of the incidence amongst the uninoculated and the inoculated. The former give the epidemic incidence which might have been expected amongst the followers if they had not submitted to inoculation.

	Total Number.	Number Attacked by Plague.	Incidence per Cent.
Inhabitants who were not inoculated	5,595	383	6.8
Inhabitants who were inoculated with Haffkine's serum	1,300	5	0.35

Influence of Haffkine's Serum upon the Mortality of the Disease at Kirkee.

To estimate this three classes of cases must be considered :

1. The inoculated inhabitants who developed plague (and were subsequently treated in the followers' hospital).
2. The uninoculated inhabitants who developed plague (and were subsequently treated in the followers' hospital).
3. The uninoculated people who developed plague (not treated in hospital; majority treated by native doctors).

	Number.	Result.		Mortality per Cent.
		Recovered.	Died.	
Class 1.—Inoculated (treated in hospital) ...	5	4	1	20
Class 2.—Uninoculated (treated in hospital) ...	*12	7	4	41
Class 3.—Uninoculated (not treated in hospital)	383	123	260	66

* Includes 6 additional cases admitted from the ammunition factory at Kirkee.

The vaccine, consisting of a culture of the *B. pestis* killed by heat to which a minute quantity of carbolic acid had been added, was supplied by Government in sealed glass tubes. The dose, varying from $\frac{1}{2}$ c.cm. in the case of a strong man to 0.5 c.cm. for a child 10 days old, was given subcutaneously at one sitting, except in the case of women who were more than seven months pregnant, when it was divided into two halves, the second being given at a week's interval. Glass syringes were used, and were sterilized by the hot oil method. The needle was sterilized between each operation. The site chosen for the injection was the centre of the posterior surface of the upper arm. The arm was scrubbed with soap and water, after which carbolic 1 in 20 and finally spirit was used. The symptoms following the inoculation varied with different individuals; as a rule, within four hours there was pain and swelling locally and a slight rise of temperature. The symptoms subsided on an average in 30 hours. In some cases there was practically no reaction. In spite of the antiseptic precautions observed, six out of the series of 1,300 developed an abscess at the site of inoculation; they were treated in the ordinary way and all healed rapidly. There were no other untoward sequelae.

With regard to drug treatment, strychnine appears to be almost a specific for the disease.

A CASE OF CHLOROMA.*

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THE case described in these notes was shown in my absence to the Coventry Division of the British Medical Association by Dr. Harman Brown, on January 21st, 1907, and on February 19th I was able to show the Division the *post-mortem* specimens and read the full notes.

L. C., female, aged 11, was admitted to the Coventry and Warwickshire Hospital on December 20th, 1906, suffering from exophthalmos. She had previously been seen by a medical man, who had found the urine to be loaded with albumen.

Family History.

The girl was an orphan, and none could be obtained. A sister was seen, and was found to be healthy.

History of Present Condition.

In the first week in December it was noticed that the "eyes looked queer"; a fortnight later the swellings of the temples were noticed. There was no history of vomiting, vertigo, or headache.

Condition on January 1st, 1907.

There is great proptosis of the right eye, which is displaced outwards and downwards. Its movements are very limited in an upward direction, but are fairly free in the other directions. There is also marked exophthalmos on the left side, but the condition is not so extreme as on the right side. The left eye moves well in all directions.

There is enormous engorgement of the conjunctival vessels in the upper cul-de-sac on each side, that on the right side being more intense. The veins of both eyelids and on the temples are greatly distended. There is marked chemosis of the right eye. No pulsation can be felt in either orbit, nor can any bruits be heard.

The pupils are equal and normal in size, and react to light and accommodation. All the media are clear.

There is optic neuritis on each side, the right disc being choked to the extent of 2.5 dioptries, the left only to 1.5 dioptries. The congestion of the retinal veins is not extreme. There is a retinal haemorrhage at the outer and the upper aspect of each disc, close to its margin in each case. These haemorrhages are in extent equal to about one-sixth the area of the disc.

VR uncorrected = $\frac{1}{2}$ TR = $+\frac{1}{2}$
VL " " = $\frac{1}{2}$ TL normal.

Each temporal fossa is bulged out by a semifluctuating swelling which becomes harder as one leaves the temporal muscle; and above it merges into bone. This swelling is much larger and harder on the right side.

The girl looks very ill. Her skin is a yellowish waxy colour, and suggests extreme anaemia. She can, however, walk and co-operated intelligently in the ophthalmoscopy and vision testing.

There are no subcutaneous haemorrhages and no oedema of the ankles or legs. The chest was carefully examined and was found to be normal, there were no cardiac murmurs and no dullness was detected over the sternum. The abdomen was flat and there was no ascites. The liver and spleen were normal in size. No enlarged glands were felt.

The urine contained neither sugar nor albumen, but before admission albumen had been found in large amount.

The blood examined fresh showed a large excess of leucocytes. The count gave the following result:

Red cells, 3,000,000.

White cells, 26,000.

I made some films, and they were kindly examined for me by Dr. J. Cropper, of Chepstow, who reported as follows:

Differential count:

Polymorphonuclear cells ...	2 per cent.
Large lymphocytes ...	69 "
Large mononuclear cells ...	14.8 "
Small lymphocytes ...	14.2 "
Eosinophiles }	not present.
Mast cells }	

"The low proportion of polymorphs is very striking. The condition is one of lymphatic leukaemia, rather than myelogenous leucocythaemia, pointing to affection of the glands rather than of the bone marrow, there being no eosinophiles of any kind, such as one sees so commonly in myelogenous leukaemia."

The photograph shows the general appearance of the patient at this stage.

Progress of the Case.

January 10th. The spleen can just be felt. Small glands can be felt in the axilla, neck, and groin.

There are some purpuric haemorrhages under the skin on the right buttock and thigh. The saliva is also a little blood-stained, the blood apparently coming from the gums. Patient

* Communicated to the Coventry Division.

is deaf on the right side. Her general condition is much the same, but she sleeps a great deal.

January 24th. During the night there was an alarming haemorrhage from the orbit, the blood coming from under the eye. The house-surgeon controlled it by pressure and by perchloride of iron, but not before the patient had become much collapsed. At the end of the haemorrhage the eye sank back into the orbit, and there was no proptosis.

January 30th. The proptosis of the right eye is much increased. The lower cul-de-sac is occupied by a bleeding, fungating mass, which, however, showed no green colour. The general condition is unaltered, but patient passes most of her time in sleep. She takes little notice of her surroundings, but answers questions. Complaints of no pain. She has apparently good vision in the left eye. The right cornea has sloughed. She is very deaf on the right side, but hears well on the left.

February 17th. There has been some dyspnoea for the last few days. Patient is semicomatose, but can be roused to answer questions. She is very weak, and has lost flesh. A second blood count gave—

Red cells, 1,450,000;

White cells, 17,000.

The child died on February 18th, the disease having been diagnosed as "chloroma."

Notes of Post-mortem Examination.

The body was much wasted, there being little fat present. Both eyes, which, during life had been pushed forwards, were retracted into their sockets.

On removing the sternum, a large flat growth was seen on its inner surface; this was pale olive-green in colour, and was under the periosteum.

The ribs were green by transmitted light.

There was about a pint of blood-stained fluid in each pleural cavity. The right lung showed some fibro-plastic pleurisy of recent origin. At the apex of each lung was a mass of new growth which fixed the lungs to the vertebrae. On section, the growth was found to be invading the lungs to the extent of about $\frac{1}{2}$ in. from the surface. The lungs were otherwise free from metastases. This growth was olive-green. Both lungs were very oedematous, but there were no haemorrhages.

The heart was normal, but the pericardium was covered with small ecchymoses.

The spine along its whole length was covered by large flat masses of growth varying in thickness up to $\frac{1}{2}$ in. These growths were subperiosteal, and were olive-green in colour. This growth was continued along the ribs, especially on the left side. Some ribs had a thicker growth than others.

The stomach and small intestines showed no naked-eye changes. The whole of the large intestine and rectum were contracted and empty except the first 4 in. of the ascending colon. At this spot there was a sudden narrowing in the lumen of the gut, but the gut did not appear to be infiltrated with growth.

The liver and spleen were normal in size, and contained no new growth. Both ovaries were enormously enlarged, and were infiltrated by masses of green growth. The right eye was entirely disorganized. There was not much growth in the orbit. There was a small mass deep in the orbit, and apparently growing from the outer wall and from the periosteum. The right lachrymal gland was invaded by a green growth.

In the right temporal fossa, under the temporal muscle and the pericranium, there was a large, hard, flat growth about $\frac{1}{2}$ in. in thickness. There were small masses of growth along the sagittal and coronal sutures, and a large mass on the right half of the occipital bone. There was an excess of cerebro-spinal fluid. The meninges were thickened and infiltrated with a green growth along the sagittal suture. The right cavernous sinus was filled with a green growth, and the lateral sinus on the same side was occluded by the same substance.

The specimens were placed into formalin solution 10 per

cent. After twenty-four hours the green colour was still as obvious as ever, and the intestines had a greenish tinge. The contraction of the colon was regarded as a congenital abnormality. The thyroid gland was enlarged, but not infiltrated with growth.

The specimens were sent to St. Bartholomew's Hospital, and the dura mater and an ovary have been added to the Museum. Dr. W. Branson examined the sections of the growth, and reports as follows:

"The growth is a round-celled sarcoma with an unusually well-marked stroma. At one spot it may be seen infiltrating the dura mater. The ovary shows a diffuse infiltration of the ovarian tissue with round-celled sarcoma."

The total duration of the case was about seven weeks. The exophthalmos was chiefly due to vascular engorgement and to thrombosis of the cavernous sinus. It was absent after the severe haemorrhage and after death. Very little growth was found in the right orbit.

The case was first regarded as a sarcoma of the orbits and temporal fossa, then as a case of lymphatic leukaemia with lymphomata in the orbits, but was finally correctly diagnosed as a case of "chloroma."

In spite of the intracranial tumours and the excess of cerebro-spinal fluid, there were never any symptoms of compression.

The case is very similar to one described by Dr. Melville Dunlop in the *BRITISH MEDICAL JOURNAL* for May 3rd, 1902. He gives references to 26 previous cases. There has been one recently at St. Bartholomew's Hospital, and Dr. Coles of Bournemouth tells me that he saw one at York Hospital. In any case the disease is very rare.

My thanks are due to Dr. J. Cropper of Chepstow, who kindly examined the blood films, to Dr. Branson of St. Bartholomew's Hospital for his report on the histology of the growth, and to Dr. T. H. Barton, Senior House-Surgeon to the Hospital, who made careful blood counts. I am also indebted to him and to Mr. Russell, Junior House-Surgeon, for making the *post-mortem* examination.

ALBUMOSURIA AND THE DURATION OF ALBUMINURIA IN CHOLERA.

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The constant presence of albumose in the urine of patients suffering from cholera after suppression has ceased is, as far as I am aware, a new observation. In all the cases that I examined this was as constant as albumen. In most of them it disappeared from the urine along with the albumen. In some cases the period of albumosuria was shorter than that of albuminuria, and in very rare cases it continued to exist some hours after the disappearance of the latter. (See Table.) The amount of albumose present varied from a mere turbidity to a distinct precipitate, and was not in all cases proportional to the amount of albumen present. In a few cases there was a mere trace of albumose, while the quantity of albumen was large. The albumose present was characterized by the following tests:

1. Not precipitated by heat.
2. Precipitated by HNO_3 . The precipitate was soluble on boiling and reappeared on cooling.
3. The precipitate was granular and never crystalline under the microscope.

The period of albuminuria ranged in my cases from 24 to 300 hours with an average of nearly 120 hours, which is much greater than what is stated by any previous observer. (See Table.) I append here the table containing the results of my observation.

Nos.	Albumosuria.	Duration of Albuminuria	Duration of Albumosuria.
	Present	Hours.	Hours.
1	"	36 (death)	36 (death)
2	"	60	60
3	"	24	12
4	"	60	12
5	"	84	60
6	"	36 (death)	36 (death)