or conditions giving rise to it, oxygen must be given early, before the patient becomes obviously very ill.

A girl in my ward for some weeks had small boils in various parts of her body, then she developed acute periostitis of the right radius—all due to a staphylococcal infection. When admitted her urine was very acid and contained sugar—it reduced Fehling's solution with the greatest ease. She was given 200 c.cm. of oxygen, and in twenty-four hours her urine contained only a trace of sugar. She had another 200 c.cm. of oxygen, and next day her urine was free from sugar. During that time no incisions had been made in her arm.

The apparatus needed for giving subcutaneous oxygen consists of the gas cylinder, a coarse piece of rubber tubing attached to the valve, and this coarse piece connected by a joint of glass tubing with a finer piece of rubber drainage tubing, to the end of which is attached the needle of a serum syringe. There is no need to heat or filter the

CHART 1.—Acute lobar pneumonia: the right lower lobe extensively involved, the left lower lobe to a less degree. The oxygen was given on the third day of the disease.

gas. A convenient place to give the injection is below and outside the nipple or breast.

At first I measured the amount injected by means of two graduated bottles, one of which contained water. Such an apparatus is a nuisance, and is not required. I found that if sufficient gas is admitted under the skin so as to inflate an area equal in size to the palms of two hands, the amount given is roughly equal to 200 c.cm. Much larger amounts can be safely given.

The time taken for the oxygen to be absorbed seems to vary according to the patient's need. It seems well in bad cases to give at least 400 c.cm. at first and then see the patient in six hours, repeating the dose if most has been absorbed. A large dose of oxygen can be given as easily and quickly as a dose of serum, and it is less painful.

CHART 2.—Acute lobar pneumonia: left lower lobe. The oxygen was given on the fifth day of the disease.

Since the early days of haematology, when Ehrlich's work became known, attention has been focused on the various white cells of the blood, and the red cells, though far more numerous, have not been talked about much in connexion with acute and chronic infections. Perhaps they have been unfairly neglected. By dosing our patients with oxygen in this safe and easy way we can give the red cells a chance to show what they can do.

I have felt impelled to write this note on account of the uniformly good results seen in pneumonia and in burns and scalds; on account of the simplicity of the method, and because I believe that the giving of oxygen is of benefit in many conditions. It is interesting to remember

that drugs such as alkalis, potassium chlorate, and potassium permanganate, all of which can help oxygenation, have long been popular in the treatment of acute and chronic toxæmias.

The accompanying temperature charts are typical of cases of acute pneumonia treated with subcutaneous oxygen.

POST-MORTEM FINDINGS IN A CASE OF RENAL DWARFISM.

BY

H. A. COOKSON, M.B.; F.R.C.S. ED., D.P.H. CANTAB.,
PATHOLOGIST TO THE ROYAL INFIRMARY, SUNDERLAND, AND TO THE
CHILDREN'S HOSPITAL, SUNDERLAND.

THE case here recorded appears to be of interest because of the absence of bone deformity in a girl presenting the other features of renal dwarfism.

Clinical Notes, May 1st, 1928.

The patient was a girl aged 16 years. The history obtained stated that six months previously she had an attack of pain in

FIG. 1.—Kidney, weight 21 grams (normal weight 140 grams).

the abdomen with vomiting and diarrhoea. She went to an institution and returned benefited. She remained well until three or four weeks ago, when she suffered from abdominal pain and vomiting, and mentally was rather dull.

When admitted to the Royal Infirmary, Sunderland, on May 1st, the child looked drowsy and complained of abdominal pain. She was seen to be markedly undeveloped, looking between 11 and 12 years of age. The abdomen was rather

FIG. 2.—Kidney, laid open. Weight 21 grams.

tumid. The heart showed no abnormality. The urine had a specific gravity of 1010, neutral reaction, albumin present, no blood, pus, or sugar. An endocrine defect was suspected. An x-ray report of the region of the pituitary fossa showed no enlargement of the sella turcica. The Wassermann reaction was negative. The blood count showed: haemoglobin 45 per cent., colour index 1.02, red blood cells 2,200,000 per c.mm., white blood cells 9,600 per c.mm. Differential white cell count: polymorphonuclears 81 per cent., lymphocytes 18 per cent., no eosinophils or basophils, large mononuclears 1 per cent.

The patient gradually became comatose and died on June 3rd, apparently of uraemia.

Post-mortem Examination.

The general appearance suggested that of a child of 11 years of age. The body was well nourished and plump. No deformity of the limbs was noted. There was a bald patch, apparently alopecia areata, on the back of the head.

FIG. 3.

FIG. 4.

Chest.—Both lungs showed old chronic tuberculosis and tuberculous broncho-pneumonia. The thymus was not persistent, and there was no increase or decrease in the size of the thyroid gland. The heart presented no peculiarity. The large vessels showed no degenerative changes.

Abdomen.—Tuberculous mesenteric glands. The spleen and liver presented no abnormality. The uterus and ovaries were very small and undeveloped. The intestine showed no abnormality.

The brain showed some oedema and flattening of the con-

vulsions. No tubercles were seen. The pituitary gland appeared normal.

The kidneys specially described (see Figs. 1 and 2). These were very small. The surfaces were granular and the capsules stripped freely. A small cyst was present in the right kidney. The cortical area was greatly diminished. On section (see

Figs. 3 and 4) the tubules of the kidney were dilated. The glomeruli (Fig. 3) showed slight fibrotic changes, but were otherwise normal. There was marked interstitial fibrosis, the arteries showing considerable thickening (Fig. 4). The condition was that of a progressive interstitial nephritis.

During life an endocrine defect was suspected in the child, and it was only at the *post-mortem* examination that the condition of the kidneys was fully appreciated.

I am indebted to Dr. R. Mair, assistant physician to the Royal Infirmary, Sunderland, whose case this was, for the clinical notes.

HERPES AND VARICELLA.

BY

N. GRAY HILL, M.C., M.B., B.S.

TOWARDS the end of last century von Bokay noted the occurrence of herpes zoster and varicella in the same households at the same time. Since there is a marked similarity of the skin lesions in the two conditions, he suggested that there might be a common cause for the two diseases, or, to put it in other words, the two conditions might be different manifestations of the same disease. During the last thirty-five years many papers have been published referring to outbreaks of varicella which have appeared to owe their origin to contact with cases of herpes zoster. The relationship of the two diseases has frequently been discussed, but no definite decision has yet been reached.

Le Feuvre, working among families living in isolated farmsteads in South Africa, made out a strong case on clinical evidence for the common origin of herpes zoster and chicken-pox, and Netler observed over a hundred cases, mostly French, in which herpes appeared to have given rise to varicella or varicella to herpes. On the other hand, chicken-pox was made a notifiable disease in Burton-on-Trent between November, 1922, and December, 1924, and the medical officer of health, Dr. Cowie, or his assistant investigated every one of the 813 cases reported in 559 families. In only nine—that is, 1.6 per cent. of cases—was there a history of recent herpes in the family.

In Queen Mary's Hospital for Children, Carshalton, twenty-nine cases of herpes zoster have occurred among the patients and staff during the last two years. In spite of the fact that all cases of herpes and chicken-pox are isolated, eight of the herpes cases seem to be very closely

associated with outbreaks of chicken-pox, as is shown in the accompanying table. This would suggest a common origin

The Relationship between Chicken-pox and Herpes Zoster.

Ward.	Date of Onset of First Case of H.Z. or C.P.	Date of Onset of Subsequent Cases.	No. of Days between Onset of H.Z. and 1st Case of C.P.
C. 6	H.Z. 24/11/27	C.P. 10/12/27 " 11/12/27 " 25/12/27 " 28/12/27 " 1/1/28 " 11/1/28 " 14/1/28	Sixteen days.
E. 4	H.Z. 3/11/27	C.P. 13/11/27 " 16/11/27 " 27/11/27 " 28/11/27 " 3/12/27 " 7/12/27 " 16/12/27	Ten days.
D. 6	H.Z. 10/4/27	C.P. 27/4/27 " 1/5/27 " 12/5/27 " 12/5/27	Seventeen days.
F. 1	H.Z. 24/1/28	C.P. 11/2/28 " 13/2/28 " 26/2/28 " 26/2/28	Eighteen days.
C. 5	H.Z. 1/5/26	C.P. 15/5/26 " 31/5/26	Fifteen days.
A. 3	H.Z. 18/3/28	C.P. 2/4/28 " 15/4/28	Fifteen days.
E. 4	H.Z. 9/8/26	C.P. 24/8/26 " 9/9/26	Fifteen days.
E. 1	C.P. 13/11/26	H.Z. 3/12/26	Twenty days.

C.P. = Chicken-pox; H.Z. = Herpes zoster.