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in its turn one would expect to have led to hydronephrosis. After careful examination I cannot satisfy myself that this is the pathological explanation of the cystic condition of the right kidney. There is no dilatation of the renal end of the ureter present and it ends in compact tissue, and this tissue is interposed between the ureter and the cyst.

Can it be that these kidneys were at one time normal, that the back pressure was borne principally by the bladder and vesical ends of the ureters, and that later a complete block led to renal atrophy and cystic degeneration? Was the free fluid which was present in the serous spaces due to the final renal inefficiency? These questions I fear I can only ask but cannot answer.

I am indebted to Lieutenant-Colonel J. H. R. Bond, C.B.E., D.S.O., R.A.M.C., Commanding Officer, 36 Casualty Clearing Station, B.A.O.R., and to Major E. L. Moss, C.M.G., M.C., R.A.M.C., Officer Commanding Military Families Hospital, B.A.O.R., for permission to publish these notes. The excellent photograph was taken by Corporal J. W. Stewart, R.A.M.C., of the X-Ray Department, 36 Casualty Clearing Station, B.A.O.R.

REFERENCES.

A SMALL OUTBREAK OF "MUSHROOM" POISONING DUE TO INOCYBE INCARNATA.

By Captain (Temp. Major) T. Young.
Royal Army Medical Corps.

FIRST GROUP OF CASES.

On the evening of June 25, 1924, a corporal and six fusiliers of the 1st Battalion, the Lancashire Fusiliers, Tidworth, were admitted to hospital complaining of giddiness, blindness and cold clammy sweats. They were in a state of collapse, pale, sweating profusely, temperature sub-normal, pulse slow and feeble, pupils widely dilated except in one case, where they were normal. Two men only vomited. No pain was complained of. Treatment consisted of gastric lavage, injection of atropin 1/50 gr., application of hot-water bottles and administration of castor oil and brandy. Recovery was rapid; next morning temperature and pulse were normal, patients felt quite well and all were discharged to duty on June 27.

It was found that four or five hours previous to the onset of symptoms, a party of the Lancashire Fusiliers had picked and eaten some "mushrooms" which they had found growing on the Plain within a mile or so of the barracks. Two other men reported sick complaining of sweats and
with dilated pupils. They were not detained. It was ascertained later that several others were out of sorts for a short period, and also that some who had consumed the fungi were apparently not affected.

The fungi concerned proved to be Inocybe incarnata, as stated below.

SECOND GROUP OF CASES.

On June 27, 1924, four gunners at Larkhill partook of "mushrooms" at breakfast time. They had collected these the previous day and shown them to the Sergeant Cook, who pronounced them genuine, and cooked them. The four men were proceeding on pass to Bournemouth, but one was taken ill shortly after breakfast and sent to hospital in a state of collapse. His symptoms were the same as in the previous cases but to a greater degree, and he was very ill for two or three days. On admission his temperature was 97°F, pulse 40, and pupils dilated. His face was flushed, he was shivering and perspiring very freely. Slight vomiting took place, and he passed a small greenish stool. He was very thirsty and complained of some pain in the right hypochondriac region. Atropin 1/50 gr. was administered and the stomach washed out, the contents being greenish in colour. He slept badly, and next morning his pulse was 90 and temperature 99.4°F. He still complained of pain in the right side, and at times all over the abdomen. He had no more vomiting and was exceedingly thirsty. Castor oil was administered. On the 29th he passed fragments of "mushrooms." On the 30th his condition was much improved, and he was discharged from hospital July 5, 1924.

The other three men started out for Bournemouth but took ill on the way and were admitted to a civil hospital in Salisbury. Symptoms were similar but mild and they were discharged the following day. Treatment was similar to that administered in the Military Hospital.

The offending fungus in these cases was also I. incarnata. Orders were immediately published drawing the attention of all ranks to the danger of eating fungi liable to be mistaken for "mushrooms," and no further cases occurred.

DIFFERENTIATION OF EDIBLE AND NON-EDIBLE FUNGI.

In the course of a correspondence concerning these cases, the following notes with explanatory sketches were provided by Lieut.-Colonel W. P. MacArthur, Royal Army Medical College. They are reproduced here, as others may find them useful:

There is no general test that can be applied to differentiate edible and poisonous fungi. The only means of knowing whether a given fungus is poisonous or not is to have the species identified and ascertain its record in this respect. Under military conditions such an exact procedure would usually prove impracticable, and in the absence of expert knowledge we must be content to identify the common edible species, and discard all other mushrooms whether poisonous or not.
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The common edible mushroom found in pastures, *Psalliota campestris,* shows in conjunction three easily recognizable characters:—

(1) The cap [fig. 1] is white to buff in colour.

(2) Except in the tiny "button" stage, in which they may be white, the gills [fig. 1] are salmon pink in colour, becoming with growth purplish brown.

(3) The stem has a "ring," i.e., in the young stage there is a membrane joining the edge of the cap to the stem [fig. 2], and as growth proceeds this ruptures and hangs from the stem as a ring [fig. 1].

Further, any mushroom with a sheath-like formation on its stem is probably dangerous [fig. 3].

Fig. 1.

Fig. 2.

Fig. 3.

The above simple tests will eliminate all the poisonous species, but one must not assume that every mushroom lacking these three characters in conjunction is necessarily dangerous, though it may be so. All stages of *P. campestris* will pass the test, as will many of the equally edible *P. arvensis*; some stages of the latter, especially if grown on very rich soil, would be rejected because of the colour of the cap. It is better to waste such rather than complicate matters by introducing too wide a range of admissible colours.

The popular beliefs that poisonous mushrooms in cooking will discolour a silver spoon, and that only edible mushrooms have alternately long and short striae on the gills are erroneous.

*I. incarnata* is the species responsible for both the outbreaks of poisoning which you report, this identification being kindly made by Mr. Ramsbottom, of the British Museum (Natural History). These fungi would have been rejected immediately by the above tests, for they show pinkish caps, clay coloured gills, and no ring on the stem.