incision was employed with no cross division of muscle or aponeurotic fibres. And, lastly, that while the number of cases is possibly too few to admit of a very positive statement—9 in all—where the incision had to be carried either upwards or downwards, it seems probable that downward extension is more likely to be followed by a bulging cicatrix than upward.

CONCLUSIONS.

1. That, where proper precautions are taken to protect the general peritoneal cavity, this method of operating admits of every abscess being opened and every appendix sought for and removed with perfect safety.

Cases of Uncomplicated Appendical Abscess Treated with Pure Carbolic Acid and Iodoform.

No.	Sex.	Age.	Nature of Abdominal Opening.	Date of Examination after Operation.	Condition of Cicatrix: a. Reply by Letter; b. Patient Seen and Examined.
1	F.	37	Gridiron; no cross division of muscles	Years. 4½	a. Bulging at site of drainage tube.
2	M.	22	Incision in median line over situation of abscess	4½	b. Ditto.
3	F.	12	Gridiron; no cross division of muscles	4½	b. Ditto.
4	F.	34	Internal oblique and transversalis muscles divided upwards	4½	a. No bulging.
5	M.	53	Gridiron; no cross division of muscles	3½	b. Ditto.
6	F.	12	Ditto	3½	a. Ditto.
7	M.	22	Ditto	3½	Case not traced.
8	M.	17	Internal oblique and transversalis muscles divided downwards	3½	Ditto.
9	F.	10	Gridiron; no cross division of muscles	2	a. No bulging.
10	M.	51	Internal oblique and transversalis muscles divided upwards	2	b. Ditto.
11	M.	39	Ditto	2	b. Bulging at lower part.
12	M.	21	Gridiron; no cross division of muscles	2	b. Marble-size bulging at site of drainage tube.
13	F.	5	Internal oblique and transversalis muscles divided upwards	1½	b. Bulging at lower part.
14	M.	40	Internal oblique and transversalis muscles divided downwards	1½	b. Considerable bulging for about 5 inches.
15	M.	34	Gridiron; no cross division of muscles	1½	b. Bulging at site of drainage tube.
16	M.	13	Ditto	1½	b. Ditto.
17	M.	11	Ditto	1½	b. Ditto.
18	M.	21	Internal oblique and transversalis muscles divided downwards	1½	b. Slight bulging at lower part.
19	M.	17	Ditto	1	b. Bulging marked at lower part.
20	M.	8	Gridiron; no cross division of muscles	½	a. Slight bulging.
21	M.	27	Ditto	½	b. No bulging.
22	F.	44	Ditto	½	b. Bulging at site of drainage tube.
23	M.	16	Internal oblique and transversalis muscles divided upwards	½	b. Ditto.
24	M.	29	Ditto	½	b. No bulging.
25	M.	22	Gridiron; no cross division of muscles	½	b. Slight bulging at lower part.
26	F.	17	Ditto	½	a. Slight bulging.
27	M.	56	Ditto	½	b. No bulging as yet.

NOTE.—The appendix was removed in all cases except No. 4, where removal was partial, and No. 24 where the appendix was not found. The peritoneal cavity was opened in all cases; there was no subsequent complication in any, and the result in all was recovery.

2. That this method prevents any subsequent septic complications, such as subdiaphragmatic abscess, pyelephlebitis, pneumonia, thrombosis, and other septic manifestations connected either with the wound locally or with deeper and more distant parts.

3. That, as drainage is considered advisable in every instance, the probabilities are in favour of a weakened cicatrix at the seat of exit of the tube and gauze, with, later, hernial protrusion; but, provided the incision is of the "gridiron" variety, with no cross division of muscle or aponeurotic fibres, and neither the tube too large nor the packing excessive, the bulging may be only slight.

4. That abscess formation in appendicitis must be considered a serious complication, whether regarded in its immediate or in its remote effects; and inasmuch as we can never forecast the possible formation of pus in any given acute attack of appendicitis, we should proceed to remove the appendix before such a complication could take place—that is to say, within, at the latest, forty-eight hours of the initial seizure.

A CASE OF IDIOPATHIC DILATATION OF THE COLON.

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OWING to the comparative rarity of this condition, the following notes and accompanying photographs may be of interest. Unfortunately actual measurements of the patient were not taken in such a way as to be of practical value; but it is possible that the photographs will convey a clearer and more interesting impression of the appearance of the abdomen than a mere statement of measurements.

The patient—an imbecile of low type—a native of Shetland, aged 34 years, first came under notice in May, 1904. No family history was apparently available. He was then described as "suffering from marked distension of the abdomen, through whose wall the peristaltic movements of the intestines can be readily observed. Over the middle of the right tibia in front is a typical syphilitic ulcer, another is situated on the leg posteriorly, at the junction of the middle and lower thirds." Otherwise there appeared to be no marked pathological changes other than the physical defects frequently associated with imbeciles. An attempt was made to reduce the abdominal distension by giving purgatives and by the administration of enemata, but no appreciable change took place as regards dimensions, though a free action of the bowels resulted from a large dose of castor oil. In fact, the abdominal distension appeared to become gradually greater during the first eighteen

months he was under observation; then for about two years practically no change took place. At the end of this time—that is, about three and a half years after he was first seen—he developed, without any apparent cause, a severe attack of diarrhoea, with vomiting and complete disappearance of the distension. After a couple of days, when the diarrhoea had ceased, the abdominal distension returned to about its original size. During all this time the patient persistently refused every kind of medicine, including aperients. Enemata were tried without success. The result was that he sometimes went for ten days or even a fortnight without evacuating the contents of his bowels. These evacuations took place without the administration of any drugs, and the average time between successive motions was about seven or eight

days. He always took his food well, consequently his motions were very large. He constantly passed his urine in bed, and seemed to have very little control over the acts of micturition and defaecation.

Having recovered from his first attack of diarrhoea, and the abdominal distension having returned, the patient remained in the same condition for about eighteen months, when he developed a second attack of diarrhoea and vomiting, the distension again disappearing, only to return in a couple of days when the diarrhoea had ceased. It was noted that he did not feel so well until he regained his distended condition.

He now remained in his usual health for about nine months and then began to get gradually worse. His abdomen became enormously distended, absolutely tense and of highly glazed appearance. This stage lasted about three or four months. Finally breathing became so difficult and the heart's action so much impeded that he died. There was also severe vomiting before death. The condition was diagnosed independently by several of his medical attendants as idiopathic dilatation of the colon.

Necropsy.

A post-mortem examination was performed, when the following pathological conditions were noticed:

There was great oedema of the legs and scrotum, the abdomen being distended to an extreme degree. On opening the latter the small intestine immediately bulged out; and on extending the incision, a quantity of pale greenish fluid flowed out of the abdominal cavity.

The alimentary tract from rectum to stomach was greatly dilated and contained practically nothing but gas. Dilatation was greatest in the descending and transverse colon. Commencing at the sigmoid flexure, it rapidly increased so that the lumen of the descending colon measured about four times its normal diameter after being deflated. At the splenic flexure the bowel was constricted, and dilatation again occurred in the transverse colon, which was between three and four times its normal diameter. Another constriction was found at the hepatic flexure, and the bowel again became dilated. Dilatation, however, was not nearly so extreme in the ascending colon and caecum.

The appendix was normal. The small intestine and stomach were considerably distended and filled with gas. The diaphragm was abnormally high and arched, the liver small, nodular, and freely movable, and showed some fatty degeneration. The spleen was normal in appearance; the kidneys showed some congestion and interstitial changes.

The heart was markedly displaced upwards and very small; the valves appeared healthy, but the pericardium contained excess of fluid. The lungs were pushed upwards, but appeared healthy.

SOME EXPERIMENTS ON COLD-CHAMBER TREATMENT.

BY

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With Prefatory Note by

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PREFATORY NOTE.

SOME years ago Sir Edwin Durning-Lawrence, Bart., offered funds to the Liverpool School of Tropical Medicine for the purpose of experimenting on the effect of cold on yellow fever, a subject in which he had long been interested owing to various reports which had come to his knowledge. The school found it difficult to give effect to his wishes, and the matter was allowed to drop. For a long time I have felt that much experimental work remains to be done on various possible therapeutic agencies, such as cold and heat, and in 1909 I therefore asked Sir Edwin Durning-Lawrence whether he would not assist us to commence such studies in Liverpool. He assented at once, and very generously gave a considerable sum of money for the purpose of making the required cold chamber and for maintaining the cost of the investigation. The chamber was made by the Haslam Engineering Company, Derby, and the researches were in full progress at the beginning of 1910. At first Major Williams, I.M.S. (retired), conducted them under myself; but in April Mr. J. G. Thomson, M.B., Ch.B., took up the work, and has continued it to date. He reports the total results in the following paper. I may add that there are considerable difficulties in the way of such researches, many of the experiments being rendered invalid by the death of the animals owing to various causes. Experiments with many diseases is almost impossible owing to several small difficulties.

I think, however, that some evidence has been obtained the effect that a cold dry air may retard certain

infections, and will therefore probably have some beneficial effect in disease. In such an important matter as treatment, this may be looked upon as of value, and also as an indication for work in the same line in connexion with human patients. We should therefore like to advocate the construction of cold chambers in connexion with hospitals—that is, chambers where human patients suffering from various disorders, such as phthisis, could be kept under observation; and I hope that efforts may be made to carry out this idea. We should like cases for trial.

R. R.

PRELIMINARY.

No noticeable change can be observed in a patient's body as a consequence of alteration of external temperature; but nevertheless changes may be produced in his blood and tissues which may be inimical to the parasites living in him.

It is common to send patients suffering from malaria to temperate climates, for example the hills of India, and it is easier to treat such patients in England than in the tropics. Again, from a careful study of the statistics in India it has been noted that a sudden rise in the malaria-rate occurs at the end of the cold season before any new brood of *Anophelines* has been hatched out. This may be due to relapses caused by the greater heat.

In discussing relapses in malaria, R. Ross (1910) puts forward as a hypothesis that external heat probably tends to encourage these. Although the temperature of the body remains much the same, the parasites may be stimulated by the heat in some way, owing to the fact that warm climates are specially suitable to them and to their dissemination by mosquitos. The same observer, while conducting experiments in India with birds, noted when he took these to a cold climate, such as the Himalayas, that the parasites in their blood greatly diminished in numbers. Many observers, especially in Italy, have noted that season affects the plasmodia, especially the sexual forms, quite apart from the proliferation of the carrying agents.

Not many years ago phthisical patients were shut up in hot rooms, and now such patients go to the hills of Switzerland, where they are subjected to a cold dry atmosphere. In fact, there is good reason to believe that the cold acts in these cases as a tonic to the whole animal organism, and without doubt acts almost as beneficially as the purity of the air inhaled.

It has been shown by Raubitschek (1910) that white rats fed on buckwheat and exposed to the sunlight develop a disease which has been called fagopyriemism, a condition which in many respects simulates pellagra, whereas those kept in the dark remain quite healthy. Before this experiment, a suggestion that sunlight was capable of aiding disease would have been regarded as most improbable, but here we have absolute and direct proof of the influence of such natural agencies.

It is usually admitted that people who live in cold climates have more vitality and energy than those who live in the tropics. More work is done and greater energy displayed in cold climates. Too much heat and too much cold will both lower vitality. In suggesting cold treatment, however, we do not mean exposure, and we did not in any way lower the vitality of the animals observed by us. It has been well proved, after about eighteen months' experimental work with rats and guinea-pigs, that the animals in the cold chamber are livelier and take their food better than those in the varying atmosphere of the animal house, the temperature of which in the summer months was often very high. A cold moist atmosphere or exposure to a sudden change of temperature may be exceedingly dangerous to the vitality of an organism, but this is quite a different thing to the cold dry bracing atmosphere of Switzerland and Canada during the winter. All visitors to the cold chamber here admitted the efficacy of a short sojourn in it, and this was most noticeable during the heat of summer. One feels more vigorous in this chamber, and this probably better than anything else may suggest the possible value of treatment in it.

Very little seems to be known of the physiological action of cold air on the living organism. It is known that cold causes constriction of the peripheral arterioles of the skin, and that a cold bath stimulates leucocytosis. We know that animals which are homoithermal, if anaesthetized with ether, become poikilothermal, but have