

LETTERS TO THE EDITOR.

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Intravenous Injections in Cholera.

IN the address given by Sir Leonard Rogers to the Indian Science Congress at Bombay (NATURE, May 29) reference is made to the treatment of cholera by injections of saline solutions, with the object of replacing the fluid lost from the blood, which loss may amount to 67 per cent. of the plasma volume. The distinguished worker found that isotonic sodium chloride solution (0.85 per cent.) was practically useless, but that hypertonic solutions (1.2 per cent.) were of much greater value. Since the walls of the blood-vessels are freely permeable to salts, there is no permanent difference of osmotic pressure between their contents and the tissue spaces outside them. Hence there is no permanent force to prevent the escape of fluid from the blood-vessels. So long as the salt-content of the blood, as raised by the introduction of hypertonic solutions, exceeded that of the tissue fluids in his cases, there would be absorption of water and the blood-volume would be maintained; but before long the salt concentration of the tissues would rise to that of the blood, and there would no longer be the difference of osmotic pressure necessary to hold the fluid in the circulation against the filtration due to the arterial pressure. This would explain the repeated injections found necessary by Sir Leonard Rogers. In some experiments that I have made, 2 per cent. sodium chloride was found to leave the circulation and cause cedema, although not so rapidly as isotonic solutions did.

Although the walls of the blood-vessels are permeable to salts, they are impermeable to colloids, so that if we could introduce a solution of a colloid which possesses an osmotic pressure, it would not leave the circulation, and its property of attracting water and preventing loss by filtration would be more or less permanent. We have such a colloid in gum-acacia. I have been able to show that a 6 or 7 per cent. solution of this substance in 0.9 per cent. sodium chloride maintains the blood-volume under various conditions in which it was defective. Such solutions were used extensively in France for the treatment of hæmorrhage and wound-shock.

I would therefore venture to recommend the trial of the method in cholera. I understand that some steps have been taken at Aden in this direction. Gum-saline has been used by Dr. Burkitt in Nairobi for black-water fever, and found to raise the blood-pressure permanently and to restore the renal function. Sir Leonard Rogers refers to the last as a very serious factor in cholera, and the state in this disease appears to be such as promises better reaction to intravenous fluids than does black-water fever.

The calcium bicarbonate contained in gum serves also to neutralise any acid produced in the tissues owing to defective blood-supply, and if the physiological action of calcium is required, no further addition is necessary.

Of course, the treatment by gum-saline is not to be regarded as a cure in the ordinary meaning of the word. It keeps up the normal circulation and allows other means, such as are mentioned by Sir Leonard Rogers, to be used effectively. W. M. BAYLISS.

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A Crocodile on Rotuma.

CAPT. W. W. WILSON, formerly harbour-master of Levuka, Fiji, has sent me a photograph of a crocodile taken by Mr. G. Missen. This animal landed alive on Rotuma in July, 1913, being afterwards speared by the natives. Rotuma lies 260 miles due north of the Yasawas, the most westerly islands of the Fiji group, and 600 miles east of the New Hebrides and Santa Cruz groups; the nearest Solomon islands are upwards of 300 miles further west.

The photograph represents a full-grown adult crocodile. Dr. H. Gadow has identified it as *Crocodilus porosus*, Schneider, a species which has the habit of wandering out to sea. It is found from the Bay of Bengal to the Solomon Islands. The British Museum Catalogue of Reptiles mentions Fiji as within its area of distribution, but gives no precise record of any occurrence there. It certainly did not come from Fiji or any lands to the east, as crocodiles do not now exist on them, though native legends of live crocodiles landing were rife in Fiji when I was there in 1896-97. It must indeed have crossed from the west, and covered at least 600 miles of open, landless sea. This occurrence is sufficiently remarkable to be placed on permanent record. J. STANLEY GARDINER.

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Calendar Reform and the Date of Easter.

As an influential effort is apparently being made in Paris to bring the question of the improvement of the Gregorian calendar before the Peace Conference, I should like to direct the attention of the scientific, commercial, and ecclesiastical authorities who may be interested to the exceptionally favourable opportunity afforded for such rectification by the calendar of the year 1925.

In recent years many proposals for the improvement of the calendar, or rather for the adoption of another, have been placed before the public, but not much consideration has been given to the question of how such an improved calendar is to be coupled to the existing calendar without breach of continuity.

The Gregorian almanac for the year 1925 offers an unusually favourable opportunity for effecting this. If May 31 in that and all following years were declared to be excluded from the weekly series, and if the same rule were applied to the odd day in all leap-years thereafter, it is obvious that the calendar of 1925 with the above modification would become the perpetual calendar of the future.

In this calendar March 1 is a Sunday, and, without in any way changing the enumeration of the years for purposes of dating, that date could very conveniently be recognised as the commencement both of the business and financial, and also of the ecclesiastical, year. Easter Sunday could not be fixed for a more suitable day than April 12, which is the date of its occurrence in the year mentioned, and Pentecost would naturally and appropriately fall on May 31, the day already suggested for exclusion from the weekly series. Pentecost being the anniversary of the foundation of the Christian Church, its special sequestration in this way makes a strong appeal to the ecclesiastical authorities.

Under the above calendar it would be quite unnecessary to remove the 366th day from its position at the end of February, and the only other change required to equip the almanac with equal quarters and half-years would be to restore the original Julian syllabus of months by removing the odd day so unfortunately added to August by Augustus, and restoring it to February. August, 1919, might appropriately be the last to bear the stigma of imperial disfigurement.