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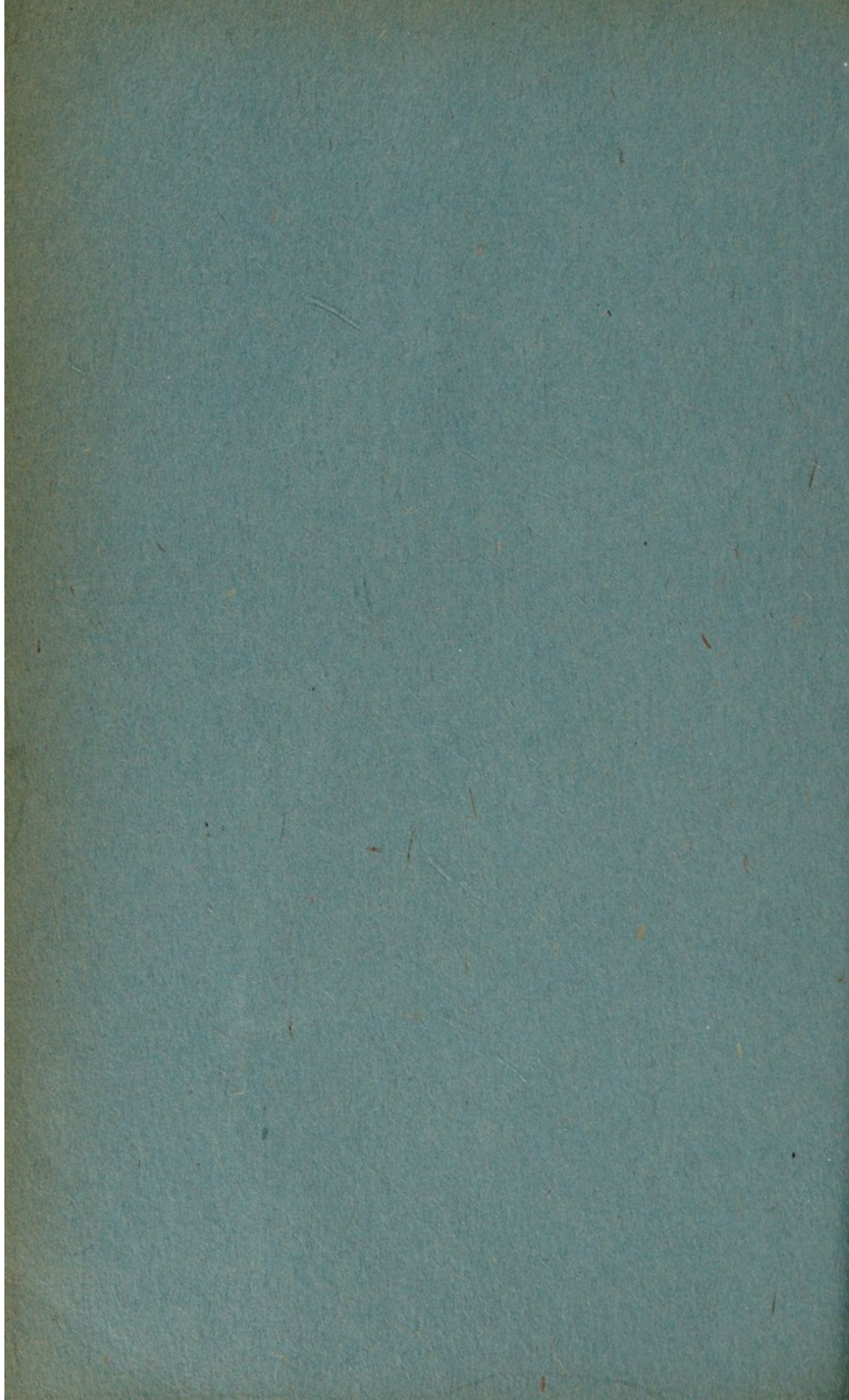
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ACIDOSIS AND ACETONAEMIA  
IN RELATION TO SEA-  
SICKNESS

BY

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AQUITANIA





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SURGEON, R.M.S. AQUITANIA

(A communication to The British Medical Journal)\*

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THE HISTORY OF THE  
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BY JOHN BURNET  
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## ACIDOSIS AND ACETONAEMIA IN RELATION TO SEA-SICKNESS

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Although I have been going to sea, off and on, for thirty-one years, I never associated acidosis and acetonaemia with sea-sickness until I held the appointment of surgeon to the steadiest ship I have ever been on, where there are comparatively very few cases of this complaint.

What drew my attention to it, I think, were the extraordinary number of cases in women in the middle or late stage of pregnancy, who, having ceased vomiting in the early months, commenced vomiting again after coming on board, and some cases of intractable vomiting in children, when the movements of the ship were so slight as to be out of all proportion to the illness of the patients. The children often had a previous history of cyclical vomiting. My investigations, covering a period of three years, have shown me increased acid and acetone in the urine in all cases of apparent sea-sickness with the exception of two, which came under my notice only recently, and made me doubt the conclusion I had come to, that all cases of sea-sickness were due to or accompanied by acidosis and acetonaemia. It almost made me wonder whether these two cases were simple sea-sickness after all. In a great number of cases acetone can be detected in the breath of the patient. I should like to have the observations of other ship surgeons on the prevalence of acidosis and acetonaemia amongst cases of vomiting at sea. Although sea-sickness *may* not be due to these causes, the presence of acidosis and acetoneuria in such a very large proportion of cases seems worthy of thorough investigation. That the acetone present is not due to

starvation is amply proved by the fact that some persons are sea-sick shortly after the ship sails—some even declare they are nauseated before the ship moves from the dock, and one patient declared that the mere walking along the dock before embarking was sufficient to cause a feeling of nausea. It would seem likely that the sympathetic system may act on one or more of the endocrine glands, possibly the pancreas, and so cause the fats to be broken up into these substances instead of carbon dioxide and water, as we know happens in diabetes. At any rate it is interesting to note that these cases respond very readily to intensive alkaline treatment (especially children); the worst cases have to be treated by high rectal injections, and when vomiting ceases, as it often does in an hour or two, the treatment is continued by mouth. It is almost like a conjuring trick to see a child, who has been lying in bed and vomiting everything ingested, up and about playing in a few hours. I have added glucose to these rectal injections, but clinically this does not seem to be a success, though theoretically it would appear to be indicated, and I have consequently discontinued it. For the rectal injections I use sodium citrate (1 drachm to a pint), repeated according to retention and results, and grape fruit and oranges or lemonade by the mouth when they can be retained, as they often are almost immediately. By the mouth sodium citrate is given, from a maximum dose of half a drachm every two or three hours downwards, according to retention, severity, and age (after vomiting has ceased or become less frequent following the rectal injections), often combined either with nux vomica or sodium bromide, according to whether the case is asthenic or sthenic as determined by the pulse. The former is, in my observation, far more frequently the case, and the patient also most often requires stimulating to counteract the depressing effect of the alkaline treatment; in milder cases a bismuth citrate mixture is effective.

In conclusion, these investigations have shown in my practice that more than 99 per cent. of cases of


*Jones: Acidosis in Relation to Sea-Sickness*

vomiting at sea, not due to an obvious organic lesion, have been accompanied by increased acidity and acetoneuria; the sickness clears up quickly under an intensive anti-acid treatment, and it would seem to follow that it is advisable to have any hyperacidity corrected before embarking.



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