2.—EXPERIMENTS ON THE ACTION OF RED BORDEAUX WINE (CLARET) ON THE HUMAN BODY, by E. A. PARKES, M.D., F.R.S., *Professor of Hygiene in the Army Medical School*, and Count CYPRIAN WOLLOWICZ, M.D., *Assistant Surgeon, Army Medical Staff*.

(From the *Proceedings of the Royal Society*, No. 123, 1870.)

In the *Proceedings of the Royal Society* (No. 120) * is an account of some experiments with pure alcohol and brandy on a healthy man. This paper is intended as a continuation, with the substitution in the experiments of red Bordeaux wine (claret) for alcohol and brandy. The same man was the subject of the experiments, and he was placed on precisely the same diet as is recorded in the former paper.

The experiments were continued for 30 days, the man having abstained from any alcoholic beverage for 16 days previously. During the first 10 days, water only was taken at dinner, during the next 10 days red Bordeaux wine was substituted for the water; 10 fluid ounces (284 cub. centims.) being given on the first 5 days, and 20 fluid ounces (568 cub. centims.) on the last 5 days. The wine was taken at dinner time, at a quarter past 1 o'clock. In the last 10 days water was again given.

The wine was a good claret, as it was thought best to use a superior wine; it was Haut Brion wine of second growth, of the vintage of 1863, and was sold in London at the price of 60s per dozen. It contained 11 per cent. of alcohol. The free acidity was equal to about 3 grains per ounce of tartaric acid ($C_4 H_6 O_6$); the total solids amounted to 21.76 grammes, and the fire-proof salts to 2.359 grammes per litre. Of this amount of salts 2.027 grammes were soluble, and .332 insoluble. In the former, phosphoric acid and chlorine were present in the amounts of .145 and .106 gramme per litre respectively; the insoluble salts contained only .0175 gramme of phosphoric acid per litre. In the 10 ounces of wine there were therefore only 0.7 grain of phosphoric acid, and 0.46 grain of chlorine.

The ash was intensely alkaline, and, when neutralized with standard acid, the alkalinity was found to be equal to 1.679 gramme of tartaric acid ($C_4 H_6 O_6$) per litre.

Only two circumstances (except the taking of wine) were different in this set of experiments as compared with the former.

The first experiments were made in February and March 1870, when the weather was very cold; the present were made in May and June in very hot and dry weather. The only influence we could trace to this altered condition of climate was that the amount of water allowed was insufficient, and the man suffered some discomfort from thirst. We could not perceive that any effect was produced on the nitrogenous elimination; certainly there was no diminution.

* See this *Journal*, August, 1870.

The other alteration was that the man had gained 4 lbs. in weight, and was still gaining a little when the experiments commenced; he continued to do so slowly until the 24th day, when his health began to give way and he lost weight.

The experiments included the number of the pulse (taken in the recumbent position) every 2 hours from 8 A.M. to 10 P.M., tracings of the pulse and respirations, the temperature of the axilla every 2 hours from 6 A.M. to 10 P.M., the temperature of the rectum four times a day (the observations being taken with the same thermometers as on the former occasion), the amounts of nitrogen, phosphoric acid, chlorine and free acidity of the urine, and the weight, and in the two cases the amount of nitrogen in the stools.

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General Conclusions.—1. The general results of these experiments are in all respects identical with the experiments on alcohol and brandy, that is to say, there was a marked effect on the heart, coinciding tolerably well in amount with the effect produced by pure alcohol in the former experiments; there was no unequivocal alteration of temperature in the axilla or rectum, no alteration in the elimination of nitrogen, for the increase in the last period cannot be credited to the direct effect of the wine; no alteration in the phosphoric acid of the urine; some augmentation of the free acidity of the urine; no alteration of the alvine discharges. In other words, claret-wine in the above quantities cannot so far be distinguished in its effect from pure alcohol. Its most marked effect, the increase of the heart's action, must be ascribed to the alcohol, in great measure, though the ethers may play some slight part.

But it would be going too far to assert that the dietetic effects of red Bordeaux wine and of dilute alcohol are identical. The difference between them must probably be sought in their effects on primary digestion and assimilation, delicate and subtle influences which experiments like those recorded in the paper do not touch; The influence of the sugar, of the salts, and of the acidity must also be appreciated by other methods. The man himself affirmed that the wine agreed with him better than the alcohol or brandy, but the large quantity he took of these last fluids vitiates the comparison.

These experiments on wine enabled us to define somewhat better than the previous trials what might be considered moderation for this man. The 10 ounces of wine, containing about 1 fluid ounce of pure alcohol, did not cause the least unpleasant feeling of heat or flushing. The 20 ounces (containing almost 2 fluid ounces of alcohol) were manifestly too much. He felt hot and uncomfortable, was flushed, the face was somewhat congested, and he was a little drowsy. Moreover, as already mentioned, alcohol then began to appear in the urine. Therefore he ought certainly not to take much more than 1 fluid ounce of absolute alcohol in 24 hours.

With regard to the propriety of this healthy man taking any alcohol, we

have no hesitation in saying he would be better without it. His heart naturally acts quickly and strongly enough; alcohol increases its action too much, and might lead on to alteration in its condition, or to injury of vessels, if any degeneration were to take place in them. This man had gone through the Abyssinian campaign, and stated that when the force was without rum, owing to deficiency of transport beyond Antalo, he had in no way felt the want of the stimulant, though some of his comrades did. This seems to confirm our opinion, that alcohol for him is not a necessity, and indeed is not desirable.

Reviews.

I.—A SKETCH OF THE LIFE AND WRITINGS OF ROBERT KNOX THE ANATOMIST. *By his Pupil and Colleague, HENRY LONSDALE.* Macmillan & Co., London. 1870. pp. 420.

DR LONSDALE has for some years devoted himself to the work of commemorating the life and deeds of the worthies of Cumberland; and his success as a biographical writer seems to have led to his being requested, by friends of the parties in each case, to undertake the preparation of a memoir, first of John Goodsir and then of Robert Knox. It would have been impossible to select two men who, being both essentially scientific anatomists, differed more entirely in all other respects—in external appearance, in manner, in their qualities both of heart and of head, in scientific attitude and work, in the amount and character of their life-long, and posthumous, reputation. It is to Dr Lonsdale's credit that he has been able to appreciate both so well as he has done.

And yet, although we are not here reviewing the life of Goodsir, we cannot refrain from saying that the work of Dr Lonsdale on that occasion to some extent disappointed us. Containing, as it unquestionably did, much to approve and be thankful for, it fell short of the massiveness, grandeur, and simplicity of such a character as that of John Goodsir. It had not that perfection of biography in which the subject is everything, and the author nothing in his own eyes. It erred, moreover, in attempting the defence of Goodsir against attacks which were never made, and never even entered into the minds of any, except injudicious and too partial friends. We are very sure that the great philosoph-