the conclusions that it is a pathogenic condition which, if allowed to persist, will eventually cause ill health and neurasthenia; that carriers are a great source of danger; and that, contrary to the usual statement, it can be cured in at least half the cases, stress being laid on combined treatment by purgation, thymol, emetin bismuthous iodide, and colonic lavage.

Physical Examination.

The Central Medical Board has carried out research work in connexion with abnormalities of the circulatory system, especially in regard to fainting, nausea, and vomiting in the air, together with control experiments on successful pilots who have never experienced these disabilities.

The annual medical examination into the physical efficiency of officers, of whom the strength on December 31st, 1922, was 2,950, has been carried on, and the records of 2,654 such examinations show that 78 per cent. were fit for full flying duties. The total number of fresh cases of functional nervous disorders among officers was 58, as compared with 59 in 1921. With regard to venereal disease, the prophylactic measures described in detail in the last report were continued during 1922, and apparently with success, for the case incidence per 1,000 of strength of the total force for all types of the disease was 27.2, as compared with 36.1 in 1921, and a table giving the effects of prophylactic disinfection on the contraction of venereal disease shows that a greater number of cases occurred among those reported to have used the prophylactic measures improperly or to have failed to employ them at all. There was a fall in the case incidence of scabies, from 14.3 in 1921 to 8.4, though the duration of each case was about one day longer; the case incidence of impetigo also fell; but there was a rise in the incidence of influenza, from 26.4 in 1921 to 50.9 in 1922, the disease being mild and without any deaths. It is not therefore surprising that the incidence of cases grouped under the heading of the upper air passage has risen from 64 in 1921 to 73.9 in 1922. That there were fourteen more deaths from flying accidents in 1922 than in 1921 is largely due to eight deaths as the result of three collisions in the air, a cause which in the previous year was responsible for one death only. With the adoption of the revised nomenclature with regard to heatstroke, sunstroke, and heat exhaustion, it is shown that there were 11 cases of heatstroke with 10 fatalities, and 175 cases of heat exhaustion abroad with a case ratio of 22.3 per 1,000, without any deaths.

Medical Officers' School.

It may be noted that during the year under review fifty-three medical officers passed through the Medical Officers' School of Instruction at Hampstead, where lectures and practical demonstrations are given by the specialist members of the Central Medical Board, and that lectures on the medical aspects of flying were given at most of the R.A.F. stations during the year by the Director of Medical Research. Further, the hygiene of the cadets has been looked after by a course of lectures at Cranwell, and the examination papers submitted twice a year have shown that the candidates have a satisfactory knowledge of the subject-matter.

BEEF AND MALT WINES.

A PAPER on "The Composition of Beef and Malt Wine," by Mr. G. D. Elsdon, B.Sc., F.I.C., read at a meeting of the Society of Public Analysts on March 5th, is published in the May number of the *Analyst*. Mr. Elsdon's attention seems to have been drawn to the matter by an analysis he was called upon to make of a beef and malt wine, which he concluded contained neither beef nor malt, but an undue proportion of salicylic acid. He found in Hutchison's *Food and the Principles of Dietetics* a statement that "A 'beef and malt wine' may usually be regarded as containing about 1½ ounces of extract of meat and 2 ounces of malt extract in a pint of 'detannated' port or sherry." He also found that pharmaceutical formulae published at the office of the *Chemist and Druggist* suggested that beef and malt wine should contain 4 ounces of extract of beef and 8 ounces of extract of malt per gallon of wine—equivalent to 2.5 per cent. and 5 per cent. respectively. He was informed by two manufacturers of beef and malt wine that they added 2.5 per cent. of extract of beef and from 2.5 to 5 per cent. of extract of malt. This proportion was considerably lower than that mentioned by Hutchison, and Mr. Elsdon assumed for the purpose of his further inquiry that a beef and malt wine should be prepared by the addition of at least 2.5 per cent. of beef extract and 2.5 per cent. of malt extract. These, he points out, are the quantities added, but a considerable proportion of both extracts is insoluble in water or is precipitated by the alcohol of the wine, so that the amount of nitrogen and phosphorus contained in the wine as finally delivered to the consumer will be substantially less than the amounts calculated from the proportions of material added.

In the first place Mr. Elsdon examined a number of malt extracts and found that the percentage of phosphorus (P_2O_5) in the ash varied from 0.34 to 0.70, and that of nitrogen from 0.73 to 1.46. A number of analyses of meat extracts were collected from various authorities, and Mr. Elsdon made an independent analysis of a sample he chose as typical. His maximum results were 5.50 per cent. phosphoric acid and 8.85 per cent. nitrogen.

The wine used as a basis in the preparation of beef and malt wine is usually, he states, a cheap Spanish or Portuguese wine of a port character. A number of wines of the type generally used by manufacturers—some of them, in fact, were wines actually taken from stock kept for the purpose—were examined; the percentage of alcohol by volume was found to vary from 9.2 to 17.6, but of the eight samples examined all but two contained over 13 per cent. As the various analyses quoted gave an average figure of about 9 per cent. for the total nitrogen in a meat extract, Mr. Elsdon took 8.7. Similarly, an analysis of malt extract showed about 1.3 per cent. of total nitrogen, so that a mixture of equal parts of meat and malt extracts would contain about 5 per cent. of total nitrogen, and this was the standard adopted. Assuming the minimum quantity of 5 per cent. of this mixture to be added to the wine, and assuming also all the nitrogen to be retained by the wine, it follows that the prepared beef and malt wine will contain at least 0.25 per cent. of nitrogen, without taking into account the amount (some 0.03 per cent.) natural to the original wine. Mr. Elsdon found that about 70 per cent. of the nitrogen added as a mixture of beef and malt extracts remained in solution; it follows, therefore, that a wine sold as a beef and malt wine should contain at least 0.18 per cent. of nitrogen and 0.12 per cent. of phosphorus pentoxide.

In order to discover how far various commercial samples could be properly described as "meat and malt wine" a number were examined, and the results are given in the following table, which also includes the results of an examination of various proprietary wines supposed to be of a beef and malt wine character.

No.	Alcohol by volume per cent.	Total Solids per cent.	P_2O_5 in Ash per cent.	Total Nitrogen per cent.	Description.
1	18.0	16.7	0.060	0.082	Liebig's beef and malt wine.
2	19.2	10.7	0.140	0.115	Ditto.
3	16.1	7.4	0.090	0.110	Ditto.
4	16.3	15.4	0.091	0.098	Ditto.
5	20.4	16.6	0.048	0.052	Ditto.
6	19.2	9.6	0.100	0.040	Ditto.
7	18.0	9.7	0.018	0.120	Tonic wine.
8	17.6	10.2	0.047	0.052	——'s "——."
9	17.1	10.5	0.038	0.040	——'s wine.
10	17.4	11.3	0.062	0.058	"——."
11	16.0	8.7	0.060	0.049	"——."
12	18.6	16.2	0.060	0.060	——'s "——."

It should be noted that "Liebig" appears to be used by manufacturers as a generic term; it bears no relation to the Liebig's Extract of Meat Company, but merely signifies an extract of meat made, or alleged to be made, by the process suggested by Liebig.

Mr. Elsdon says that comment on this table is hardly necessary, but we may remind the reader of his statement that a meat and malt wine should contain at least 0.18 per cent. of total nitrogen and at least 0.12 per cent. of phosphorus pentoxide.