similarities. The ridge-like branch of *Vb* present in both, the anastomosis between the chorda tympani and the *Vc*, are amongst the more interesting points of resemblance. Similarities in the cranial blood vessels are also seen, the most important among which is the presence in the cranio-quadrate passage of a large venous channel formed by V. jugularis interna, the V. capitis lateralis and the cranial branches of the latter.

The Treatment and Prophylaxis of Malaria.*

A Comparative Study of Quinine as compared with the Synthetic Drugs Atebrin and Plasmoquine.

A SERIES of experiments in accordance with a uniform programme under the auspices of the League of Nations have been conducted in different countries under varying epidemiological conditions to study the comparative value of quinine as against Atebrin and Plasmoquine. The study included the relative value of these three drugs in respect of (1) primary infection, (2) gametocytes, (3) acute clinical symptoms, (4) frequency of relapses, (5) splenomegaly and prophylaxis. The tests on prophylaxis included (1) a daily administration of a prophylactic dose of quinine or atebrin to the entire population of an antimalarious district throughout the effective transmission season ; (2) the systematic treatment with either one or other of the drugs alone or in combination with plasmoquine of all clinical cases of malaria whether primary or relapses detected during the season : and (3) medical and microbiological observations of the above groups and of a control group until the following transmission season.

As a result of these experiments one of the important observations made is that the differences existing between the strains of parasites, prevent the drawing of uniform conclusions. But still from the available evidence it is possible to state that quinine in mean daily doses of 1 gm. for five to seven days compares quite favourably with atebrin, though the action of atebrin is slightly more rapid and more lasting on the trophozoites of *P. vivax* and *P. malariæ*. The atebrin-treated cases have fewer relapses than the quinine group though the yellow colouration produced by atebrin is a definite disadvantage.

The selective anti-gametocidal action of plasmoquine against the gametocytes of *P. falciparum* is confirmed and no further evidence is available to justify its therapeutic use.

In combination, the value of quinine and atebrin is still doubtful, but quinine and plasmoquine offers distinct advantages in having fewer and less intense toxic symptoms as also being found most efficacious in the treatment of benign, tertian and quarten malaria.

It is noted that while the possible toxic effects of the synthetic drugs have been studied in detail, the question of the behaviour of quinine under similar conditions has not received the same attention. The slow elimination of atebrin is confirmed and the experiments of Field, Niven and Hodgkin further show that the quantity of atebrin held in the system after the third week, after the cessation of prophylactic treatment (in weekly doses of 0·40 gm.) was too low to prevent the occurrence of relapses.

Further work on the dosage and form of treatment and administration of atebrin and plasmoquine to children in any scheme for mass treatment, is called forth in view of the statement in the League report that these questions cannot be regarded as finally settled.

In the doses used as a prophylactic (0·1 to 0·40 gm. of quinine daily as against 25 mg. every two days to 5 cg. every day of atebrin), it is reported that quinine was more effective than atebrin as the reduction in the spleen and parasite rates in the quinine group was effected more quickly and maintained for a longer time. But attention has to be drawn to the fact that while the quinine group received 2/5 of the usual curative dose, the atebrin group got only 1/6 of the daily curative dose and that atebrin was administered only once in two days as against quinine which was given daily. With equivalent quantities the results might have been very different. In the case of plasmoquine it is felt that except under strict medical control, the drug is still dangerous for use as a mass prophylactic.

As regards the rôle of synthetic drugs in regard to black water fever, it is stated that the action of atebrin in influencing the onset of black water fever is probably the same as that of quinine.

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* *Fourth General Report of the Malaria Commission*, "Study of Synthetic Drugs as compared with Quinine, in the Therapeutics and Prophylaxis of Malaria."

League of Nations Bulletin of the Health Organisation, October 1937—"Comparative Experiments in Mass Prophylaxis of Malaria by means of Quinine and of Synthetic Drugs (Quinacrine and Prœquine)" by L. Parrot, A. Catanei and R. Ambialet with the co-operation of J. Glastrier.

Prevention and Treatment of Malaria by Synthetic Drugs (Field Experiments) by Dr. E. Mosna and Dr. A. Cannalis under the direction of Professor G. Bastianelli.