mental work which will enable us to employ a greater variety of drugs with definite effects on gastric function; it has been my endeavour in this paper to show that we already have a limited series of such substances, and I feel that the selection of those with appropriate actions must lead to a steady improvement in gastric therapeutics.

I would in conclusion express my thanks to my colleagues and the students of the Middlesex Hospital, in whose physiological department all my recent experiments have been conducted, and on whose generous help I have always been dependent.

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THE TREATMENT OF KALA-AZAR BY "BAYER 205."

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THE following case, in which the drug "Bayer 205" was used with success in the treatment of kala-azar, is worthy of record, more especially as the only case hitherto reported ended disastrously.

A lascar, aged 22, left Bengal, in apparently good health, at the end of July, 1922. He became ill on August 12th, and in September noticed a swelling in the abdomen. He was treated with quinine on board ship and also at Cape Town, but did not improve and steadily lost weight. On November 8th he was sent to the Liverpool School of Tropical Medicine as a case of malaria with enlarged liver and spleen. He was emaciated (weight 95½ lb.), the liver and spleen were considerably enlarged, the latter extending well below the umbilicus to within three fingerbreadths of the brim of the pelvis; the temperature was 100° F., and the pulse 90 to 100. Examination of the blood for malaria parasites was negative. A leucocyte count revealed marked leucopenia—2,000 leucocytes per cubic millimetre. On careful searching of a whole blood film a single *Leishmania* was found. The faeces were normal and negative, except for the presence of a few *Ascaris* eggs. On November 13th the weight was 94 lb. A few *Leishmania* were again found in the blood on November 15th, and a spleen puncture made the following day revealed the presence of the parasites in very large numbers. The blood gave a well marked formol-gel reaction, and the urine contained a faint trace of albumin.

It was decided to treat the patient with tartar emetic administered by the rectum; and from November 16th to 20th daily injections of 1 grain in half an ounce of water were given; from November 21st to 23rd the daily dose was increased to 2½ grains of tartar emetic. The temperature, which, except for a couple of rises to 100° F., had been normal until November 19th, commenced to rise on this date and continued to oscillate between 100° and 101° F.; the weight on November 23rd was 93 lb. No injections were given from November 24th to 26th, but on November 27th injections of 2½ grains were resumed and continued to December 20th. The temperature remained above normal, rising at times as high as 102° F., until December 2nd, when it again became normal and has since remained so. The weight, however, gradually decreased until December 17th, when it was only 88 lb. On December 11th the leucocyte count had increased to 5,000 per cubic millimetre, but on December 12th a few *Leishmania* were found in the peripheral blood.

From November 16th to December 20th the patient had received by the rectum a total of 105 grains of tartar emetic; the injections, which were only half an ounce in volume, were well retained, and that some antimony at least was absorbed there is no doubt, as the urine examined on November 21st, and on subsequent occasions, was found to contain very definite quantities of the drug.

From December 21st to 27th no treatment was given. A spleen puncture made on the latter date revealed the presence of *Leishmania* in considerable numbers, but, so far as one could judge, not in such great numbers as on the occasion of the previous puncture on November 16th. On December 23rd the weight was 91 lb., an increase of 3 lb. during the week.

Whilst, therefore, there is some evidence that the intra-rectal course of tartar emetic had been beneficial to the patient, and had possibly to some extent reduced the mass of the infection, and perhaps might have resulted in still further benefit had it been continued, it is obvious that it

had by no means cured the disease. Under its influence the temperature had returned to normal, the general condition of the patient had improved, the leucocyte count had risen, and the parasites in the spleen had apparently become less numerous; but, on the other hand, the weight had continued to fall, the spleen and liver had not decreased in size, and parasites had disappeared neither from the peripheral blood nor from the spleen.

It was then determined to ascertain the effect of "Bayer 205" on this disease. The formula of the drug, which is a preparation of the German chemical firm Messrs. Friedr. Bayer and Co. of Elberfeld, has not yet been disclosed. It has recently been used with great success in the treatment of trypanosomiasis of man and stock. It has also been tried in various other diseases of man and stock—namely, in malaria, recurrent fever, and general paralysis of man, and in the triplasmoses of domestic animals—but without any success.

So far as I am aware, the only occasion on which the drug has been used in kala-azar is the case recently recorded by Mollow (1922). In this case only a very small dose (0.2 gram) was given, but the result was disastrous, the patient quickly developing alarming symptoms—severe rigors, headache, haemorrhages from nose and gums, severe vomiting which later became haemorrhagic, and collapse; later the patient became violently delirious, and finally death occurred sixteen hours after the injection. In view of this record the treatment of the present case by "Bayer 205" was undertaken with some little trepidation.

On December 23th an intravenous injection of 0.25 gram of "Bayer 205" was given. This injection, which in Mollow's case had rapidly proved fatal, produced not the slightest effect in the present case; the temperature remained normal, and the patient complained of no unusual sensation. On December 30th the weight had increased to 93 lb., and a second intravenous injection of 0.5 gram of "Bayer 205" was given; this likewise was attended by no ill effect—the temperature remained unchanged, the patient complained of nothing, and the urine remained normal. On January 2nd it was noticed that the spleen had shrunk perceptibly, and a third injection of 1 gram of the drug was then given, and again no reaction was observed. On the following day the weight was 96 lb. On January 5th it was noticed that the spleen had further decreased considerably in size; a final injection of 1 gram of the drug was given on this date, and, as on the previous occasion, was unattended by any rise of temperature or other sign of reaction. By January 8th the spleen had shrunk at least two inches, and was well above the umbilicus. On January 13th the weight was 101 lb., and the spleen had shrunk still further; a trace of albumin was found in the urine. On January 20th a spleen puncture was made, but no parasites were found; the weight was 103 lb. On January 28th another spleen puncture was made, and this was also negative; the spleen had decreased in size to such a degree that it now extended only about 1½ inches below the costal margin, and a somewhat comparable though less obvious decrease in size of the liver was also noted; the formol-gel reaction was still positive, the urine no longer contained albumin, and the weight had increased to 105 lb. The patient sailed for India apparently in excellent health on January 30th.

The history of this case suggests that "Bayer 205" has a very definite and rapid action in kala-azar. The injection of the drug was followed by no ill effect; the spleen rapidly decreased in size, as did also the liver, though to a less obvious extent; the general condition of the patient improved, he rapidly gained in weight, putting on 14 lb. within a month, and two spleen punctures, made respectively fifteen days and twenty-three days after the last injection of the drug, were both negative.

Possibly the violent and rapidly fatal symptoms observed in Mollow's case after the administration of so small a dose of the drug as 0.2 gram are to be explained, as the author suggests, on the ground that the patient was in an extremely poor condition at the time of the injection.

I am indebted to Messrs. Friedr. Bayer and Co. for kindly supplying me with a quantity of "Bayer 205" for trial.

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A ROMAN Catholic Congress on the question of population will be held at Tilburg or Breda on April 12th and 13th, when the medical aspects of the question will be discussed by Professor Frans Daels of Ghent and Dr. A. W. Aussens of Utrecht.

DR. SOPHIE A. NORDHOFF-JUNG of Washington has founded an annual prize of 500 dollars, to bear her name, for the best work on the etiology, prophylaxis, and treatment of cancer. The judges will consist of members of the Munich Medical Faculty. The first award will be made at the end of this year.