

used against schistosomiasis. The same plant is included in the list of medicinal plants used by the Masai and Kipsigis (Glover, P. E., Stewart, J., and Gwynne, M. D., *East Afric. Agric. Forestry J.*, **32**, 200; 1966). Other species of *Solanum* are mentioned as being used to treat such conditions as anthrax, pneumonia and cough.

J. M. Watt and M. G. Breyer-Brandwijk reported the use of *Solanum incanum* against pleurisy, pneumonia, sore throat, toothache, earache, abdominal pains, liver troubles, ringworm, carbuncle, gonorrhoea and syphilis *Medicinal and Poisonous Plants of Southern and Eastern Africa*, Livingstone, Edinburgh, 1962). Poultices or infusions of the fruit are even said to be effective in removing benign tumours.

If oesophageal cancer were induced by carcinogens from certain medicinal plants, this would fit better with the incidence of the disease than if the carcinogens were present in foods. Carcinogenic medicines, used only in times of illness, would add to the existing universal exposure to carcinogenic factors, and might be what tips the balance in favour of the disease.

Dimethylnitrosamine, principally a liver carcinogen, is not known to induce oesophageal tumours (Magee, P. N., and Barnes, J. M., *Adv. Cancer Res.*, **10**, 163; 1967); rather it could be one of the factors responsible for the prevalence of liver disease in Africa. The use of *Solanum incanum* to treat babies brings to mind some forms of infantile malnutrition, such as marasmus or kwashiorkor (Schoental, R., *Brit. Med. J.*, **1**, 351; 1955). Although low protein diets are the rule, not all children in Africa suffer from clinical "malnutrition". Obviously other factors are involved. Malaria, measles, parasitic infestations and so on have been suspected; tribal remedies used for such conditions should also be considered.

Malnutrition can be "genuine", caused by inadequate diet, or "incidental", resulting from an inability to ingest and digest food, after, for example, liver damage. The latter form of malnutrition, like cachexia in cancer, does not change significantly with an improved diet as long as the underlying disease continues. Clearly an investigation of the potential toxic and carcinogenic effects of traditional tribal medicines is likely to reveal something about the aetiology of these diseases as well as cancer.

DISEASES

Trouble with the Liver

from a Correspondent

WHEN the Association of Clinical Biochemists (Southern Region) held a symposium on some biochemical aspects of liver disease in London on July 4, Professor Sheila Sherlock (Royal Free Hospital, London) reviewed the problem of drug jaundice. She classified into three groups the types of hepatic reactions to drugs which cause jaundice. There are those caused by interference with bilirubin metabolism at various points, after treatment with, for example, sulphonamides; those due to direct hepatotoxins such as carbon tetrachloride; and hepatic hypersensitivity reactions caused by, for example, halothane. The first two types of reaction are dose dependent, the latter are not. The mechanism of the hypersensitivity reactions is at present obscure. It has been proposed that, in view of the close similari-

ties between the livers of these patients and others with viral hepatitis, the mechanism involves activation of the hepatitis virus, but recent experiments with the Australian virus have made this hypothesis untenable.

Reviewing the problems of jaundice in the newborn, Professor G. H. Lathe (University of Leeds) said that he regards the "physiological" jaundice of the newborn as a transient metabolic defect. He discussed the present concepts of the biochemical mechanisms involved in the rare condition known as "breast-milk jaundice", in which inhibitors are thought to be present in the mother's milk, causing jaundice in the baby. The reported isolation, from cases of breast milk jaundice, of an unusual form of pregnanediol, pregnane 3(α),20(β)-diol, which was proposed as the inhibitory factor, has apparently not been confirmed, either in respect of the presence of this form in the milk or of its inhibitory properties.

I. Dymock (King's College Hospital, London) has found the differential ferrioxamine test a reliable measure of body iron stores in patients with haemochromatosis. It is useful both in diagnosis and monitoring treatment. Dymock discussed the controversial presence or absence of a specific binding protein in gastric juice, which has been proposed as the cause of the abnormality of iron absorption in patients with haemochromatosis. Reviewing the immunological aspects of liver disease, J. G. Walker (Central Middlesex Hospital, London) considered that the available immunological tests are not outstanding as diagnostic tools, but are of some value in differentiating the various forms of cirrhosis in patients with chronic liver disease.

When he reviewed the value of liver function tests in the diagnosis of liver disease, Professor D. N. Baron (Royal Free Hospital, London) proposed that, because the liver is involved in many metabolic systems, diagnostic tests should be selected with respect to the specific aspect of liver function that is being investigated. He thought there was no case for applying the so-called "routine" liver function tests to all patients regardless of the indications. He also reported preliminary results of computer calculations applied to biochemical results obtained from six groups of patients. The calculations yielded canonical variates, and Baron discussed their application in diagnosis.

TROPISM

Polarized Growth

from our Plant Physiology Correspondent

IT is well known that for most plants, phototropic growth curvatures are determined by the direction, colour and intensity of the light source. In addition to these parameters, the direction of growth of young sporelings (protonemal filaments) of certain mosses and ferns can be modified by polarized light. If the protonemal filament of a male fern (*Dryopteris felix-mas* L.) sporeling is irradiated from above with plane polarized light, the filament will grow in a direction at right angles to the plane of polarization. This growth curvature is not directly comparable with the phototropic response in higher plant shoots where curvature results from the induction of a lateral gradient in growth rate across the shoot. Phototropism and