genase (*B*-specific) prefers the D antipode but, when NAD is added a common pattern is re-established, the L molecule acquiring the greater reactivity. The coenzyme, as it binds, evidently alters the geometry of the thiol environment in a quite precise way. The authors interpret their findings on an allosteric framework, though the results, as they stand, would seem to need no more ambitious explanation than induced fit.

Also in *Febs Letters* (1, 133) comes a short but surprising paper from A. Curdel and M. Iwatsubo of Paris. They have starved growing yeast of zinc, but at the same time provided abundant cobalt. The resulting alcohol dehydrogenase was coloured green and had cobalt standing in for zinc, apparently atom for atom. Many enzymologists will be itching to get their hands on the material, which is catalytically active, because the role of metal in this enzyme and its relatives has so far been inscrutable. Cobalt, with its paramagnetism and characteristic spectra, makes a very attractive deputy for zinc.

PSYCHOBIOCHEMISTRY

Depression Revealed

from our Medical Biochemistry Correspondent

THE search for metabolic abnormalities in patients with mental illness progresses slowly. Several studies have indicated that the transport of sodium across cell membranes is altered in psychotic depressions, but this has not been easy to demonstrate. Glen, Ongley and Robinson (*Lancet*, ii, 241; 1968) have now shown that this alteration in ion membrane transport affects the composition of the saliva in manic-depressive patients in a readily measurable way. Saliva is initially isotonic with plasma, but some ions are reabsorbed or secreted in its passage down the salivary gland so that the final composition depends on the rate of flow and on the amount of ion transport which has taken place. Suction cups placed over the gland have enabled the investigators to collect saliva continuously. Measurements of flow rate, pH and sodium concentration expressed as pNa were made twice for each individual, first after a resting period of 15 minutes, when there was no further fall in pH after 3 minutes, and then ten minutes after the administration of citric acid. The flow rate was if anything slightly lower in the patients than in the controls, but there seems to have been less reabsorption of sodium and bicarbonate ions in the patients (in both manic and depressed states) than in the controls. The mean pH values in the two observation periods were 7.27 and 7.38 for the patients and 6.39 and 6.72 for the controls. For the patient, the mean pNa was 1.92 and 1.81 compared with 2.64 and 2.25 in the controls. When measurements were made on a group of patients who had recovered from their illness, the pH of their saliva was found to be in the normal range.

Alterations in membrane permeability may also explain the increases of creatine kinase and aldolase in the serum of patients with acute psychoses (Meltzer, *Science*, 159, 1368; 1968). Such increases were found in nine out of eleven acute schizophrenics, four manic-depressives and one patient with periodic catatonias who were acutely ill at some stage in their illness. Of 14 chronically psychotic patients and 11 neurotic patients, only five had slight transient increases of one

or both enzymes, attributable to the muscle type of isoenzyme, but there was no correlation between weight loss and enzyme activity. Moreover, there was no increase of lactate dehydrogenase and glutamic-oxaloacetic transaminase, which normally increase in the serum after exercise because of enzyme loss from muscles.

Several studies have also revealed disturbances of adrenocortical metabolism in depression. Thus it seems that many severe depressives have increased 11-hydroxy-corticosteroids in the blood, and that this level is not depressed by dexamethasone in the normal way (Carroll *et al.*, *Brit. Med. J.*, iii, 275; 1968). Twenty-seven severe depressives were compared with 22 psychiatric patients without symptoms of depression. Early morning measurements of the plasma steroids showed no significant differences, but the concentrations in recovered depressives and other patients were considerably lower than those in the ill depressives when measured in the afternoon. After a midnight dose of dexamethasone phosphate, the mean early morning concentrations were 5.3 μg per 100 cm^3 in the recovered depressives, 4.8 in the other patients but 12.1 in the depressed patients. Only four of the control patients but half of the depressed patients were above 10 μg per 100 cm^3 . There was a significant correlation between the clinical rating of mental health and the concentration of corticosteroids after dexamethasone treatment. Conroy, Hughes and Mills (*Brit. Med. J.*, iii, 405; 1968) have also found that a group of manic-depressive patients had uniformly greater amounts of 11-hydroxy-corticosteroids in their plasma than a group of schizophrenics and other psychotic patients. The daily rhythm of steroid concentrations was less regular in the manic-depressive patients. Treatment with anti-depressant drugs decreased the plasma corticosteroid concentrations. The concentrations found in the schizophrenics were very similar to those found in normal subjects, although there was a tendency for the maximum concentrations to be higher and the minimum concentrations lower.

HUMAN GENETICS

Death in the Womb

from a Correspondent

HAEMOLYTIC disease of the newborn resulting from a mother with rhesus-negative blood who produces antibody to her rhesus-positive baby in the womb is a familiar problem of modern medicine. It is less well known that this disease may also occasionally result from differences between the mother and the foetus in other blood group genes such as the ABO system.

Recent investigations of an unselected sample of 129,815 foetal deaths and 100,973 live births in New York by B. H. Cohen and J. E. Sayre (*Amer. J. Human Genetics*, 20, 310; 1968) have made possible a detailed examination of the relationships between maternal blood groups, race, age and foetal death. White Rh- mothers lose more babies than white Rh+ mothers, as would be expected, but the pattern is unexpectedly reversed for Negro mothers. White mothers of blood group O lost more babies than white mothers of blood group AB, as would be expected if group O mothers were more likely to react immunologically against their