ectomy or hypophysectomy, while others are resistant.[11] The effects of adrenalectomy are presumably due to the elimination of sex hormones. Tumours continue to regress after adrenalectomy even though the patients are maintained on cortisone. Work on experimental animals suggests that adrenalectomy has some additional and unknown effect in inhibiting tumour growth.[10] The effects of sex hormones on cancer of the breast are to some extent paradoxical. Oestrogens are carcinogenic, at least in animals. Women whose menopause occurs late are more prone to develop carcinoma, possibly as a result of the longer duration of oestrogenic activity. The biological effects of oestrogens are proliferative rather than inhibitory. Yet oestrogen therapy is of benefit in the treatment of advanced cancer of the breast in post-menopausal women, whereas before the menopause androgenic therapy is more effective. This has suggested that the therapeutic action of sex hormones may be to alter the internal endocrine environment.[1] The nature of the pituitary influence is still more obscure. Two years ago we reviewed[15] a series of experiments in which the prolonged administration of growth hormone to one particular strain of rats led to an increased incidence of neoplasia in the adrenal glands and gonads and also in the pulmonary and lymphatic tissues. Removal of the pituitary gland prevented both the spontaneous appearance of tumours and their development in response to the subsequent administration of growth hormone or of other carcinogens. E. F. Scowen and Geoffrey Hadfield[16] have studied the interrelationships between gonadotrophins and oestrogens. They have found that breast tumours are most likely to regress when production of oestrogens is diminished and output of gonadotrophin in the urine is increased, as will result from castration, but these conditions are not obligatory. Regression may also follow adrenalectomy in patients in whom there is little or no oestrogenic activity before operation, and may occur without alteration in output of either oestrogen or gonadotrophin. These authors have also isolated a "mammotrophic" factor from human urine. Professor Hadfield reports further work on this factor at page 94 of the *Journal* this week. It is extracted from urine by the same method as is used for the extraction of gonadotrophins, but its unexpected finding at an early stage in the extraction process in the previously discarded phosphatic deposit is a promising discovery. Extracts obtained from normal premenopausal women powerfully stimulate proliferation of the duct system in the breast of the weanling mouse. The mammotrophic factor has no oestrogenic activity and is not found in the urine after hypophysectomy.[16] It may be identical with prolactin. In this respect it is of interest that the hereditary tendency of certain mice to develop spontaneous mammary cancer has been shown to be handed down to the offspring in the maternal milk.[17]

Unfortunately there is not yet any method of determining before operation whether or not a tumour is hormone-dependent, but Professor Hadfield's work gives promise that simpler and more sensitive methods of estimating hormones in urine and blood will be developed to help the surgeon. Such knowledge as we now possess is largely confined to carcinoma of the breast and prostate; and all we can say at present is that the rate of growth of cancer at these two sites is to some extent determined by the influence of the endocrine system on the internal environment.

METABOLISM AND HALLUCINATIONS

Human behaviour is compounded of only a few responses. We laugh, get angry, fall asleep—and who, seeing a sleeping man, can deduce whether it is physical fatigue or mental boredom, a full stomach, or a barbiturate which brought about the unconscious state? The major epileptic fit is a final common response of the brain to electric shock, poisons, circulatory disturbance, tumour, scars, and a dozen other causes. The fit does not reveal the abnormality in the patient. And so with hallucinations—they are a symptom common to diverse conditions. The schizophrenic often hears voices, but so may the manic-depressive and the temporal-lobe epileptic. Cerebral tumours may provoke visual, olfactory, or auditory hallucinations according to their anatomical site, while the alcoholic sees pink rats and the patient in high fever converses with dead relatives. A few drugs, such as mescaline and lysergic acid diethylamide, regularly produce hallucinations. But the psychiatrist cannot deduce from hallucinations the cause of the patient's illness, and aetiological inquiry in psychiatry too often ends in psychodynamic speculation or physiological ignorance. The psychiatrist cannot satisfactorily explain why the psychotic patient is hallucinated, nor why his hallucinations come and go—and come again. Nor are there yet any specific drugs to suppress hallucinations as there are to suppress fits, or abolish insomnia, or diminish anxiety, excitement, or depression. Yet such symptomatic treatment of hallucinations would ease the life of the mental patients tortured and distracted by their voices, and might help them to greater independence.

The remedy may lie in two directions. One is the study of the physiological conditions which make hallucinations possible, by examining patients physically in various ways during their illness. This kind of clinical research is now firmly established in general medicine, but has hardly entered psychiatry so far. A recent report from one of the psychiatric pioneers[1] serves to demonstrate the method. Continuous measurements of blood pressure, capillary blood

[1] Doust, J. W. Lovett, and Salna, M. E., *Canad. med. Ass. J.*, 1955, **72**, 803.
[2] Peretz, D. I., Smythies, J. R., and Gibson, W. C., *J. ment. Sci.*, 1955, **101**, 317.
[3] Amin, A. H., Crawford, T. B. B., and Gaddum, J. H., *J. Physiol.*, 1955, **126**, 596.
[4] Fabing, Howard D., *Neurology*, 1955, **5**, 319.

oxygenation, skin temperature, and gas tensions of alveolar air were made on an elderly woman who could signal whenever her voices spoke to her. The results suggested that mild impairment of circulation heralded the onset of hallucinations, which were always absent at high pulse pressure but became louder as the systolic-diastolic difference fell. Here, control of hallucinations might be possible with drugs acting on the cardiovascular system. In other patients other factors might be more important, which only investigation can disclose. Since the causes of hallucination are many, individuals may differ physiologically in this respect.

The other remedy takes advantage of the existence of hallucinogenic drugs to define the chemical essentials of a hallucinogen[2] and the nature of its biochemical attack, in the hopes of being led thereby to anti-hallucinogens which may be beneficial to psychotics. Noradrenaline and 5-hydroxytryptamine occur in parts of the brain, and so does amine oxidase, the enzyme which destroys them. Mescaline inhibits amine oxidase, and lysergic acid diethylamide antagonizes 5-hydroxytryptamine.[3] Experiments on human subjects by Mr. R. Rodnight and Professor H. McIlwain, reported at page 108 of the *Journal* this week, have shown that lysergic acid diethyl amide and 5-hydroxytryptamine interact in man, though these workers state that the possible relation of the reaction to mental phenomena remains to be investigated. Meanwhile "frenquel," or α-(4-piperidyl)-benzhydrol hydrochloride, chemically a distant relative of the hemlock alkaloids and of dyes like gentian violet, is undergoing trial as an anti-hallucinogen: it blocks the action of mescaline and lysergic acid diethylamide experimentally, and sometimes abolishes schizophrenic hallucinations.[4] In the past the ambitious aim of "curing" schizophrenia has been adopted, and without much success. More modest aims, the alleviation of psychiatric symptoms by drugs, may soon be achieved.

PROBLEM FAMILIES

The numerous studies of problem families made since the war have pointed to the conclusion that the main causes are intrinsic rather than extrinsic. Some families, in spite of the cruellest misfortune, manage to maintain their independence in society, with or without the statutory aid that is due to them, while others because of their inherent weaknesses fail to support themselves or to care properly for their children even when every help is given them. If the nature of the inherent defects could be discovered, some attempt might be made to remedy them, or, if that is impossible, at least to minimize their effects.

Dr. Mary Sheridan, in a valuable study reported in this issue of the *Journal* at p. 91, throws light on one important cause. She found that the mean intelligence quotient in a group of mothers convicted in court of child neglect was well below that of the normal population. No fewer that 70% were found to be dull and backward or worse on the Terman–Merrill scale. That this may also be true of the fathers was shown by P. Ford, C. J. Thomas, and E. T. Ashton[5] in a study from Southampton. Again, mental illness other than mental backwardness and defect is unduly frequent in this type of family. C. H. Wright[6] in a recent paper reported that in 100 problem families there were seven epileptics among the parents, eleven other parents known to the mental health department, and in addition four certified mental defectives.

While mental weaknesses of this sort are present when the two future problem parents marry, it is usually not until several children have been born that the mother is overwhelmed and the family comes to the notice of the authorities because of gross child neglect, truancy, or delinquency. By this time one or both of the parents have lost the will to cope with life, to keep out of debt, to hold down a job, and to keep the home and the children reasonably clean. Piecemeal treatment at this stage is usually of no avail. The provision of a bed and bedding, even the provision of a new house or job, though sometimes helpful, may do no more than provide a temporary amelioration, when what is needed is the restoration of the desire to overcome difficulties and to conform at least to the minimum standards of behaviour required by the law. It is on this principle that the Family Service Units[7] have worked, and they have achieved some remarkable successes in the rehabilitation of problem families. By offering friendship and by making each step towards rehabilitation a joint one in which the client as well as the caseworker participates, they have in many cases succeeded in replacing apathy by the desire and the ability to cope again.

Dr. R. C. Wofinden[8] reports another interesting social experiment being tried in Bristol. Problem families tend to "agglutinate" in the poorest parts of our cities, and they thus miss the reforming stimulus that residence in a better neighbourhood might bring. In Bristol these families are being seeded out into reconditioned property scattered through the city which has been handed over to the welfare services department, whose officers visit the families weekly for close supervision and rent collection. In Rotterdam an opposite policy is being tried. Here the socially unsatisfactory families are moved into a special suburban estate set aside for them. A cultural centre provides various services including clinics, lessons in sewing and cookery, a meeting hall with a stage, and a refreshment bar. Through the centre, and with the help of a small staff of five social workers, the teaching of community life is helped. It is claimed that problem families learn in this way to fit into normal life again. Since the experiment began, some 60 such families have been set on their feet once more and found accommodation in other parts of Rotterdam.

By means of these various approaches much successful remedial work is being accomplished which will help to arrest the transmission of this disease to the next generation. That it is indeed transmissible is shown by Dr. Wright, who found that, of 39 marriages contracted by the older children of problem families which were under observation, only nine were known or supposed to be satisfactory. Sixteen were unsatisfactory and five had already broken down. If problem families could be

[5] Ford, P., Thomas, C. J., and Ashton, E. T., *Problem Families: the Fourth Report of the Southampton Survey*, 1955, Oxford.
[6] Wright, C. H., *Med. Offr*, 1955, **94**, 381.
[7] Seventh Annual Report of the Family Service Units, 1955.
[8] Wofinden, R. C., *Med. Offr*, 1955, **94**, 384.

diagnosed at an earlier stage by the local health authority when the birth of the first or second child is notified, possibly more successful efforts at prevention could be made. These would include the sort of training in home-craft that is now offered to unsatisfactory mothers in residential hostels such as those at Brentwood, Spofforth, and the Mayflower home.

RESPIRATORY INFECTIONS IN PRACTICE

For most general practitioners the New Year brings a burden of extra work resulting largely from respiratory infections, including influenza. Treating these acute infections in the home is not easy, and it becomes more difficult as more types of pneumonia become known and as more antibiotics are introduced for their treatment. Students and general practitioners are being constantly exhorted to make an accurate diagnosis before starting treatment and to avoid unnecessary antibiotic therapy, but the family doctor, in seeking to comply with this advice, has some very real problems to face. When called to a patient with an acute respiratory infection he must first attempt correct diagnosis by simple clinical methods: in more difficult cases he has to make up his mind whether further investigations or transfer to hospital are needed; and he must decide whether antibiotics are indicated and must choose the right antibiotic. The practical issues arising from these problems were outlined in a recent issue of the *Journal* by Dr. A. Batty Shaw and Dr. John Fry,[1] who gave an account of eighty patients with acute respiratory disease treated in general practice. All the patients were fully investigated in their own homes while remaining under the care of their own family doctors. Radiography, blood examination, sputum testing, and virus assay of the serum were done on all patients, and the value of each test in guiding treatment was assessed. Radiography proved to be the most informative investigation in confirming the clinical diagnosis of pneumonia. The other investigations were remarkably unhelpful. It was possible to find a specific bacterial cause for the infection in less than one-fifth of the patients, and even when positive the results became known only after decisions about treatment had been reached—treatment which in most cases proved effective. Blood examination was of little or no value, and, although the serological investigations disclosed a high proportion of viral infections, the results were not available in time to influence treatment. The findings of this important survey have confirmed that in the diagnosis and treatment of acute respiratory infections in general practice simple clinical methods give good results. Domiciliary radiography is helpful in some cases and might be made more readily available in future. A decision about antibiotics cannot be made according to fixed rules, but each case must be considered on its own merits. Antibiotics are probably needed in those patients who are more severely ill, those with a high fever, and those with signs of pulmonary consolidation. Penicillin and sulphonamides, given separately or together, are the safest and most reliable drugs. Failure to respond to this treatment should lead to a careful reassessment of the patient rather than to a rapid series of changes from one antibiotic to another.

[1]Shaw, A. Batty, and Fry, John, *British Medical Journal*, 1955, **2**, 1577.

NARCOTIC CONTROL

"The purpose of the international conventions on narcotic drugs is as far as possible to eliminate the improper use of these substances and illicit traffic therein." This is how the Permanent Central Opium Board describes its task in the report[1] of its work in 1955 to the Economic and Social Council of United Nations. Accurate information supplied to the Board by Governments on the licit dealings in narcotic drugs shows that there is practically no diversion of narcotic drugs from licit into illicit traffic, "which is mainly supplied from clandestine production." While addiction to morphine, cocaine, and heroin is serious enough it pales in comparison with addiction to opium, cannabis, and coca leaves. As the report states, there are millions of addicts to opium, especially in Asia. From the illicit traffic in opium come the supplies for those clandestine laboratories "which manufacture almost all the morphine and diacetylmorphine used by drug addicts." This, once more, shows how futile would be the ban on the manufacture of heroin in this country in so far as its effect on addiction is concerned. Millions of people consume cannabis (hashish, bhang, marihuana, etc.), and millions in South America chew coca leaves, a habit it is now agreed to describe as a form of drug addiction. But opium tops the list. So far control of the source would seem to have been peculiarly ineffective. For example, the Minister of Health for Iran, where there is a State monopoly of opium, declared in August, 1955, that there were in that country one and a half million opium addicts, that this addiction each year caused some 5,000 suicides, the premature death of about 100,000, and the destitution of some 50,000 children. State monopoly having failed in Iran, the Iranian Government took the drastic step in October of last year of completely banning the cultivation of the opium poppy. The effects of this will be watched with the greatest of interest. It is apparently very easy for the growers of the opium poppy to keep back a lot of their opium harvest. In Turkey, we are informed, there are some 20,000 opium-poppy fields, and it would need some 20,000 policemen to make sure that no opium from these poppies found its way into the illicit market. But hashish seems to be much more popular than opium as a drug of addiction in Turkey. One interesting trend noted in the report is the continuous rise in the consumption of codeine, accounting now for some 80% to 90% of the morphine manufactured. In 1935 world consumption of codeine amounted to 18 tons, and in 1954 it was 68 tons, but the medicinal use of morphine is much less than before the war.

The current report of the Opium Board is full of interesting facts and figures, and provides a faithful account of its stewardship of the International Conventions on Narcotic Drugs. But in relation to the recent controversy on the banning of heroin in Britain the report once more by the force of facts drives home the old contention that the answer to the control of the illegal traffic lies in the control of the source of the drug—the poppy field.

[1] United Nations. Geneva, 1955. E OB 11. Price 5s.