the years 1943 and 1952.[1-3] In 1953 the U.I.C.C. Committee on Tumour Nomenclature and Statistics, the chairman of which was Dr. Isabella Perry (U.S.A.), met with a committee appointed by the International Congress of Radiology and reached agreement on a general technique for classification, staging, and presentation of results of treatment. Then the Research Commission of the U.I.C.C. appointed a permanent committee for the purpose of classifying, by the T.N.M. system, tumours at various sites, and under the chairmanship of Dr. Denoix (France) the following sites have been so classified at the present time: breast,[4] bladder,[5] buccal cavity (including lip), pharynx and larynx,[6] thyroid gland,[7] lung,[8] oesophagus, stomach, colon, and rectum (excluding anal canal),[9] cervix uteri, corpus uteri, and ovary,[10] and skin (including melanoma of the skin).[11] Eight brochures in English, French, and Spanish have been published by the Geneva Office of the Union covering these sites. The first brochure to be published was on the breast in 1960 and the most recent sites classified were the cervix and corpus uteri, ovary, and skin. These were made available at the Ninth International Cancer Congress at Tokyo last October. The general policy of the Union is that classification of any site should be adopted for a trial period of five years, after which time criticisms of the classification and proposed modifications should be submitted to the committee for discussion.

The principles of the T.N.M. system are straightforward. The initial letters stand for: T the tumour, N the regional lymph nodes, and M distant metastases. Numbers are added to these three letters to indicate a progression in the extent of the malignant process and provide in effect a kind of shorthand notation of the particular tumour to be recorded. For example, a surgeon familiar with the system might describe a patient with cancer of the breast as T3 N2 M0. This would indicate that the tumour was of a certain size (more than 5 and less than 10 cm. diameter) *or* that it was causing ulceration of the skin, *or* that it was adherent to the pectoral fascia; that the axillary nodes were palpable and fixed; and that there was no clinical evidence of distant metastases. An essential rule of the system is that the T.N.M. description of a tumour is applied to cases not previously treated, and the description of the extent of the disease must be determined and recorded on clinical examination only. Clinical examination includes diagnostic radiology of any sort and endoscopy of any type. Operative findings are excluded except in the case of the ovary for the obvious reason that many tumours—for example, breast, lung—are treated without the more definitive information which is provided by exploratory operations. The purpose of T.N.M. is to define categories for all cases, however advanced when first seen, and also to allow subsequent and more detailed information to be added without changing the original description of the tumour.

Twelve years is a short time in medical history. One of the things which was evident at the Ninth International Cancer Congress was the general acceptance among the delegates from so many countries of the T.N.M. system. There are still difficulties to be overcome and it is possible that some of the definitions for various sites may require alteration in years to come. There can be no argument, however, that T.N.M. is here to stay and that the system deserves the attention of all specialists in the cancer field.

[1] *Bull. Inst. nat. Hyg. (Paris)*, 1946, **1**, 70.
[2] Ibid., 1950, **5**, 81.
[3] —— 1952, **7**, 743.
[4] International Union Against Cancer. Research Commission. Committee on Clinical Stage Classification and Applied Statistics, *Malignant Tumours of the Breast*, 1959. Union Internationale Contre le Cancer, Geneva.
[5] —— *Malignant Tumours of the Urinary Bladder*, 1963. Union Internationale Contre le Cancer, Geneva.
[6] —— *Malignant Tumours of the Oral Cavity (Including the Lip), the Pharynx, and the Larynx*, 1963. Union Internationale Contre le Cancer, Geneva.
[7] —— *Malignant Tumours of the Thyroid Gland*, 1966. Union Internationale Contre le Cancer, Geneva.
[8] —— *Malignant Tumours of the Lung*, 1966. Union Internationale Contre le Cancer, Geneva.
[9] —— *Malignant Tumours of the Oesophagus, Stomach, Colon, and Rectum*, 1966. Union Internationale Contre le Cancer, Geneva.
[10] —— *Malignant Tumours of the Cervix Uteri, Corpus Uteri, and Ovary*, 1966. Union Internationale Contre le Cancer, Geneva.
[11] —— *Malignant Tumours of the Skin, including Melanoma*, 1966. Union Internationale Contre le Cancer, Geneva.

Closer Links

In a painstaking assessment of future needs in the mental health services the Western Regional Hospital Board for Scotland[1] has advocated a much stronger link between mental hospitals and general hospitals. But a memorandum[2] prepared by the Royal Medico-Psychological Association points to fears among a majority of British psychiatrists that the amalgamation of psychiatric with general hospital groups would carry disadvantages sufficiently serious to justify postponement of further action at present. This apparent conflict of views reflects a dilemma that mental-health planners are now facing.

There is wide agreement that closer links between psychiatric and general hospitals bring improvements in services, status, and relationships for both staff and patients. Psychiatric patients are entitled to high standards of specialized surgical and medical care, just as patients in medical and surgical units should have the advantages of skilled psychiatric care and consultation within the general hospital. District general hospitals ought to have facilities for treating patients suffering from acute mental disturbances. Delirious states, attempted suicide, and somatically presenting psychiatric disorder are part of the daily life of any hospital, and many acute psychiatric disorders presenting as such can conveniently be investigated and treated in the setting of a general hospital.

The case for larger psychiatric units in general hospitals, aiming at the provision of comprehensive local services, is less well established. Where they are truly integrated with the rest of the hospital such units provide stimulating and congenial working conditions for medical and nursing staff and offer their patients freedom from the stigma still associated in some people's minds with mental hospitals. The danger is that the unit may become an isolated bastion within, but not of, the general hospital. The absence of long-stay facilities poses additional problems for integration of services and creates a stigmatized group of patients not fitting into the general hospital pattern. Psychiatrists fear that financial support for psychiatric developments may become subject to direct competition with the needs of medicine and surgery within the hospital or group. They also suspect that committees accustomed to the problems of a hospital with a high rate of bed occupancy and to dealing with patients who

[1] *Hospital Survey and Draft Proposals for Mental Health Services*, 1966 (released 1967). Western Regional Hospital Board.
[2] Memorandum on Amalgamation of Psychiatric with General Hospital Groups, *Brit. J. Psychiat.*, 1967, **113**, 235.
[3] *Brit. med. J.*, 1966, **2**, 655.

present acute medical and surgical problems may be unsympathetic to the rather different problems of treating psychiatric patients.

Mental hospitals in some form are likely to remain in order to provide asylum and long-term custodial (an unfashionable but necessary word) and therapeutic care, with special facilities for education, training, and rehabilitation. Will the development of large general hospital units provide opportunity for sharing medical and nursing staffs, or will they merely deprive the mental hospitals of their acute admission and treatment units? The second possibility would increase the stigma of admission to mental hospital and add to the difficulties in recruiting medical and nursing staff.[1] One suggestion made is that patients who do not require care in a psychiatric unit for acute cases should be managed in asylums staffed by non-medical specialists, with general practitioners providing such medical care as is required.

Perhaps less attention should be paid to details of institutional structure and more to overall patterns of care. With a few notable exceptions the present divisions between hospital, general practitioner, and local authority have been associated with a failure to provide flexible, continuous, and comprehensive care for all psychiatrically ill people. Community care has been welcomed on the one hand as a panacea and on the other rejected as a failure, yet comprehensive community care has rarely been achieved, nor have its consequences been evaluated.[3] Psychiatry cannot be practised entirely within the boundaries of any one kind of hospital, and its services must be related to the whole needs of defined populations if overlapping but incomplete patterns of service are to be avoided.

Symposium on Thyroid Gland

A symposium on the thyroid gland was arranged by the Association of Clinical Pathologists last October. The organizers were Dr. G. K. McGowan and Dr. M. Sandler, and Professor N. F. Maclagan took the chair. Its main aim was to provide an up-to-date review of the subject, and most speakers reported their own recent advances in the field. Now its proceedings appear as an unusually interesting special supplement to the *Journal of Clinical Pathology*.[1]

Two conclusions can be drawn from the symposium which are of particular importance to hospital laboratories investigating thyroid disease. Firstly, the diagnostic value of estimating the plasma protein-bound iodine (P.B.I.) can be increased if the result is assessed along with some measurement of thyroxine-binding protein capacity such as the resin uptake of ^{131}I-labelled triiodothyronine. A combination of the two results allows calculation of a free–thyroxine index, which gives a very good indication of thyroid status. Secondly, the diagnostic value of tests of thyroid radioiodine uptake is greatly enhanced by measuring the level of plasma inorganic iodine, for this allows the absolute iodine uptake by the thyroid to be calculated. This refinement corrects for changes in thyroid uptake of radioiodine caused by alterations in plasma levels of inorganic iodine rather than by changes in thyroid activity.

Some recent advances reported at the symposium warrant brief mention. Dr. Th. Lemarchand-Béraud describes a method of determining thyroid-stimulating hormone (T.S.H.) in human blood by the technique of radioimmunoassay. This method is sensitive enough to detect T.S.H. in the blood of normal persons. Professor E. M. McGirr presents evidence for a sixth inherited intrathyroidal defect in the formation and release of thyroid hormone caused by defective protease activity, which interferes with the liberation of thyroxine from thyroglobulin. Drs. I. M. Roitt and G. Torrigiani describe a sensitive and specific method for radioimmunoassay of thyroglobulin by which they have detected thyroglobulin in the sera of 60% of healthy persons. Thyroglobulin reaches the blood stream by way of the lymphatics. The implication of this finding is far-reaching. Thyroglobulin cannot now be regarded as a "secluded" protein, and thyroid autoimmunity must arise in ways other than by release of antigen, most probably owing to a defect of "self-recognition" immunologically.

The editors have supplied a glossary which will be very useful to readers who are new to this field. Of two appendices, one lists the factors other than thyroid disease which affect the protein-bound iodine and other thyroid-function tests, and the other indicates the usual results obtained in various thyroid disorders. The proceedings of this symposium will be invaluable to all clinicians investigating patients with thyroid disease. The critical evaluation of tests of thyroid function will certainly help to improve the standards of diagnosis and the control of treatment.

[1] *J. clin. Path. Suppl.*, 1967, **20**, 309-414.

Cadmium Poisoning

From time to time episodes of acute cadmium poisoning are reported, emphasizing the potential toxicity of this metal and its salts. In a recent incident[1] five workmen who were dismantling a frame of girders by cutting steel bolts with an oxyacetylene burner were affected. The bolts had been plated with cadmium to resist corrosion, and as a result the men were exposed to cadmium oxide fume in a confined space. The fume was not sufficiently irritant to make them stop work, but a few hours after exposure all five men became ill with malaise, shivering, sweating, an irritant cough, pain in the chest, and dyspnoea. The initially mild symptoms were followed by the development of pulmonary oedema and pneumonitis, and one man died on the fifth day after exposure. At necropsy the lungs, in addition to massive pulmonary oedema, contained thrombi in the arteries, while histological examination showed cellular proliferation and metaplasia in the alveoli. The kidneys had undergone bilateral cortical necrosis with widespread tubular degeneration and glomerular infarction.

Men exposed for longer periods to lower concentrations of cadmium oxide fume or dust or to cadmium sulphide dust may also develop disease of the respiratory system and of the renal tract.[2] Such exposure may occur during the manu-

[1] Beton, D. C., Andrews, G. S., Davies, H. J., Howells, L., and Smith, G. F., *Brit. J. Industr. Med.*, 1966, **23**, 292.
[2] Friberg, L., *A.M.A. Arch. industr. Hlth.*, 1957, **16**, 27.
[3] Bonnell, J. A., Kazantzis, G., and King, E., *Brit. J. industr. Med.*, 1959, **16**, 135.
[4] Smith, J. P., Smith, J. C., and McCall, A. J., *J. Path. Bact.*, 1960, **80**, 287.
[5] Butler, E. A., Flynn, F. V., Harris, H., and Robson, E. B., *Clin. Chim. Acta.*, 1962, **7**, 34.
[6] Piscator, M., *Arch. environm. Hlth.*, 1966, **12**, 335 and 345.
[7] Kazantzis, G., Flynn, F. V., Spowage, J. S., and Trott, D. G., *Quart. J. Med.*, 1963, **32**, 165.