is not proposed that this should be displaced by T.N.M. They can be complementary. Definitions of T might be as follows :

- T1 : Tumour confined to the mucosa, pedunculated or not, and limited to one-quarter of the circumference of the bowel.
 T2 : Tumour penetrating the muscular coat but not producing fixation of the rectum, or tumour involving more than one-quarter but less than one-half of the circumference of the bowel.
 T3 : Tumour producing fixation of the rectum but not invading other organs, or tumour involving more than half the circumference of the bowel.
 T4 : Tumour extending to other organs.

It is very seldom possible to assess clinically the state of the lymph nodes in the meso-rectum or on the lateral pelvic walls, and consequently the N category is not really applicable to this site.

Cervix Uteri

The League of Nations classification for carcinoma of the cervix was internationally recognized as long ago as 1929, has been very widely adopted, and there is no suggestion that it should be supplanted by T.N.M. Actually the four international stages would correspond to four degrees of T :

- Stage 1=T1 : The carcinoma is strictly confined to the cervix.
 Stage 2=T2 : The carcinoma extends beyond the cervix but has not reached the pelvic wall. The carcinoma involves the vagina but not the lower third.
 Stage 3=T3 : The carcinoma has reached the pelvic wall (on rectal examination no "cancer-free" space is found between the tumour and the pelvic wall).
 Stage 4=T4 : The carcinoma involves the bladder or the rectum, or both, or has extended beyond the limits previously described.

Corpus Uteri

The International Federation of Obstetrics and Gynaecology published a proposed classification of tumours of the body of the uterus in 1958. Like the stomach and colon this is not a site at which a clinical assessment of the extent of the primary or the involvement of regional nodes can be accurately made. Indeed, it may be difficult to say whether a growth arises from the cervix or the body of the uterus,

though the histology may resolve this. A simple T classification is suggested :

- T1 : Tumour confined to corpus.
 T2 : Tumour involving both corpus and cervix.
 T3 : Tumour extending outside the uterus but remaining mobile within the pelvis.
 T4 : Tumour involving neighbouring organs.

Summary and Conclusions

The evolution of the T.N.M. system of classifying malignant tumours arising in various sites is described.

Tumours occurring in five sites—breast, buccal cavity, pharynx, larynx, and bladder—have been classified and defined by the Union Internationale Contre le Cancer, who have published their recommendations.

Proposals regarding seven further sites are now outlined, namely : thyroid, bronchus, oesophagus, stomach, colon, rectum, and corpus uteri. These suggestions are a hotch-potch of proposals circulated by the British, French, American, German, Russian, and Japanese members of the Committee together with advice which I have sought from some specialists in this country and whose help I gratefully acknowledge.

A meeting of the Committee on Clinical Stage Classification and Applied Statistics of the U.I.C.C. will be held in July 1965 to consider the T.N.M. staging of these sites.

I am a member of this committee, and I hope that this article will stimulate discussion and criticism of these proposals, the ultimate purpose of which is to provide common ground on which the results of treatment and the prognosis of malignant tumours can be assessed. Comments will be willingly accepted by me. These will be put to the International Committee next year. They should be sent to the Royal Marsden Hospital, Fulham Road, London S.W.3.

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Scottish Television Experiment *

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The first postgraduate medical programme in Great Britain was broadcast by Scottish Television in March 1963. The initiative for this programme followed an experimental television broadcast which had been carried out by Scottish Television in late 1962. This broadcast had been produced in the Western Infirmary, Glasgow, and was on an open channel with the object that it would be viewed by hospital staff in peripheral

hospitals in the West of Scotland. The Managing Director of Scottish Television had for some time been interested in the possibility of an educational television channel and felt that a series of programmes like this might demonstrate that it was possible and desirable. The Glasgow Postgraduate Medical Board was already interested in the potentialities of television in teaching, and it was decided to pursue the matter under the auspices of the Board, which is a joint body formed by the University of Glasgow and the Royal College of Physicians and Surgeons of Glasgow. The British Medical Association and the College of General Practitioners were informed of the project.

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The Programme

The proposal was to put out a programme which would be entirely for doctors on an open channel after normal close-down in the evenings, and the important implication of this was, of course, that the general public would be able to view these programmes if they wanted to. Despite this limitation, it offered the unique advantage of taking postgraduate study into the doctor's own home. At the beginning, therefore, the audience was expected to be mainly general practitioners and the medical staffs of peripheral hospitals. It was thought that these programmes might also interest nurses and paramedical workers.

The next consideration was the ethics of a programme such as this. Obviously no identifiable names could be used, and after over 18 months' experience of this programme there has not been a complaint from any section of the medical profession or from lay opinion that medical ethics have been infringed by the programme.

To run the programmes the Postgraduate Board has appointed a small committee which consists of two physicians (Dr. Gavin Shaw (convener) and Dr. T. J. Thomson), a pathologist (Dr. B. Lennox), and myself, a surgeon. In addition, a very talented medical artist (Mr. Gabriel Donald) has been co-opted on to the committee, and this group chooses the subjects to be presented. These subjects are then submitted to the Postgraduate Medical Board for approval before the programmes are produced. Each programme is guided by one particular member of the committee, although the whole committee sees the script of each programme as it is being prepared and, of course, criticizes and generally contributes to each programme. The most vital contribution is that of the medical artist, whose ability to link spoken and visual images is indispensable. The member of the committee who is doing the particular programme then approaches the expert the committee has selected to take part. A considerable amount of work has then to be done to prepare the programme. The script must be written, but it is important to keep the script in the spoken idiom from the very beginning. There may be anything up to six script conferences; captions and film, where necessary, have to be made and fitted to the text so that the programme when finished runs smoothly and is not impeded by poor production.

Production Problems

Why should good production be necessary in this kind of programme; surely all that is required is to get the message across with the minimum of trouble? The answer to this is that we are all unconsciously conditioned, by watching television, into expecting production to be good. If production is poor then this is a source of irritation which distracts the viewer, and any message is much more acceptable if it is skilfully put over. The committee feels that it should not be afraid to tackle the most complicated subjects, and if this view is accepted then visual presentation must be good.

With regard to production, there was at first no local experience to be drawn on, and the first few programmes probably suffered as a result of our failure to make best use of the medium. Having directors and producers without medical knowledge means that programmes must be scripted very carefully, so that the cues for captions can be recognized by the director. This inevitably tends to make the programme rather rigid. As to the future, the greatest improvement in a programme of this kind would come from the establishment of a studio team who are familiar with the problems of educational broadcasting and who would get away from some of the conventions of present-day television techniques where entertainment is the main purpose.

We try to experiment in all our programmes, so that each programme tries out some new method of presentation.

Various discussion groups have been tried with a fair degree of success, but each of these variations increases the problems for the studio team. These programmes are, however, only in the earliest stages of development and many improvements can be anticipated given more experience.

In the subjects and material chosen the lay audience has proved to be much less inhibiting than expected. Scenes from surgical operations and demonstrations of medical techniques which might be regarded as dramatic have been avoided unless they are strictly relevant. So far no more than a passing reference to malignancy has been allowed, but we feel now that certain aspects could be tackled without too much difficulty. The programmes should not always be didactic, but should be pitched on different levels so that there is interest for all doctors. Each programme should if possible contain some recent advance in medical science, but this is perhaps not essential. The most difficult subjects often make the most popular programmes, an example of this being the programme on chromosomes, while the programmes designed to educate in the narrow sense have tended to make the viewer feel that he is being talked down to. There are many subjects to select from for future programmes, and a magazine section will be added with comments on current journals and perhaps medical news as well.

Audience

It has become apparent that the audience is wider than expected. It has not been possible to arrange full-scale audience research until very recently, and these impressions are therefore based on letters received, the audience-viewing figures provided by S.T.V., and a questionnaire circulated to local practitioners after the first four programmes. There is still no doubt that the main person we are aiming at is the general practitioner, and this will always be so. One of the great values of this programme is not just educational: the general practitioner can be brought back into contact with a medical school again. Unfortunately, this is inherently a one-way channel and is no real substitute for the personal contact between medical men achieved in a hospital; but it is a breach in the isolation that can afflict the general practitioner, and it may make him feel that he is at ease with the medical schools. It could well be followed up by other contacts. In addition to the general practitioner, programmes are being viewed by all grades of hospital staffs in the centre and at the periphery.

These programmes are also being viewed by nurses, physiotherapists, pharmacists, and other people connected with the hospital and the medical services, and they might be expected to be of value in keeping such people in touch with medical thought and practice. It is unlikely that this could be done in any other way.

Although programmes are planned only with the medical profession in mind, viewing figures show that many more lay people watch these programmes; yet no complaints have been received from them or from doctors that our influence is harmful, and it may be that factual undramatic medical programmes might do some good in putting the doctor in a true perspective.

Programmes of the Future

The future of this kind of programme must be carefully considered. First of all it would seem that the experiment has succeeded and that future programmes will no longer be experimental. If that is so, then there seems no doubt that a programme of this type is going to continue until some better means of transmitting knowledge is found. It is clear that we cannot and should not go on transmitting indefinitely a programme every month from Glasgow, as it involves an unduly heavy burden on those who take part. Although it is always easier for us to do programmes in Glasgow rather than to go elsewhere to get contributors, we hope a programme will be produced

from Newcastle before the end of the year. If in the future these programmes are networked on the commercial television channels or if the B.B.C. produces a similar programme it will always tend to be easier to make all the programmes in London, and this should be avoided.

If an ideal organization for these programmes were visualized, the first essential would be an educational channel so that these programmes could be broadcast at a convenient time, say 9.30 or 10 p.m. There would probably be one or two programmes a month. The series in general could be controlled by a small central committee representing medical schools, general practitioners, and television companies, and in each centre there would be a television production committee run rather on the lines of the one in Glasgow. The central committee could select the programme and then decide the appropriate centre to make the programme. These programmes could be made in turn in all the medical centres in the country, so that a general practitioner would be certain to see programmes made in his own medical school. In each centre, or perhaps shared by two or more centres, there would have to be a studio team which would be capable of dealing with educational programmes. Alternatively, one might visualize a medical team consisting of a producer, a director, and a camera team organized as an outside broadcasting unit who would move from centre to centre to make each programme. Facilities like this could be fully utilized by postgraduate medical programmes, but if not, there is no reason why these facilities might not be shared with other university faculties, technical colleges, and educational authorities.

To achieve an organization like this some preliminary steps could probably be taken fairly soon. Scottish Television has already shown great initiative in this matter; it has perhaps acquired prestige, but it has certainly not gained any commercial advantage from what it has done. The committee has had great

support from Scottish Television, and any deficiencies have been our own rather than due to lack of enthusiasm on the part of the company. The B.B.C. may in the near future be producing a similar programme covering the London area and a portion of southern England. The Independent Television companies are most of them either already broadcasting the programme or at least interested in doing so in the future. A move towards our ideal situation would be if the Independent Television companies could come together and organize the making of these programmes in all the medical centres except London. Then the B.B.C. and the Independent Television companies could exchange programmes so as to avoid duplication of effort and expense.

Conclusion

To conclude, I would emphasize that these programmes provide a unique opportunity for contacting all doctors, and especially general practitioners, in their homes. It may be one way of breaching the isolation that afflicts sections of the medical profession to a varying degree. The full possibilities of the programmes have yet to be explored, and their place is ideally on an educational television network. They may soon be established on a national basis, but we hope Glasgow will continue to play an important part in their production.

As a committee our thanks are due to those who have taken part in these programmes for their forbearance and co-operation, to S.T.V. for its help, to Sir Charles Illingworth and Professor C. M. Fleming for their encouragement, and to the Glasgow Postgraduate Medical Board for asking us to take part in this experiment.

Electroencephalography in Paediatrics

[FROM A SPECIAL CORRESPONDENT]

A three-day symposium on the above subject was held at the Institute of Child Health, Great Ormond Street, London, on 5-7 October. It was an attempt at intercommunication between clinical electroencephalographers, experimental neurologists, and physiologists.

The opening paper by Dr. H. F. R. PRECHTL (Gröningen) set the tone for the meeting. Experiments were described in which the simultaneous recording of several electrophysiological variables, notably the E.E.G., E.C.G., E.M.G., and respiration, was carried out in order to help explore and define the differences between normal and neurologically disturbed infants. The data processing aspect of the work was of particular interest in that advances in "hardware" had been ably exploited to determine the correlations between different variables. British workers present were moved to reflect on the under-capitalization in both men and machinery which is holding up work in their own departments of electroencephalography and clinical neurophysiology. They were somewhat reassured by a communication from Dr. G. C. LAIRY (Paris), which indicated that there is still a place for cursor and pencil

when coupled with a seeing eye and based on vast practical experience. Apparently arbitrary measures of amplitude and of frequency were shown to be of value in discriminating between groups of normal and of psychologically disturbed children.

There followed three papers on histological, electron microscopical, and physiological aspects of the central nervous system by Dr. J. P. SCHADE (Amsterdam), Dr. J. DOBBING (London), and Dr. T. A. SEARS (London). Each of these speakers managed to summarize with remarkable clarity the existing dogma in their special fields as a prelude to describing their current preoccupations. It was interesting to learn that we still do not know why the central nervous system of the infant can become pigmented in association with hyperbilirubinaemia, though we may have the answer to this problem in the foreseeable future. A useful summary of these papers is hardly possible, but each of them had its own particular relevance for the clinical neurophysiologist, whether primarily interested in paediatric problems or not.

The concluding paper of the meeting, by Dr. G. PAMPIGLIONE (London), dealt successfully with many facets of E.E.G., reporting

on both normal and abnormal children, including those with agenesis of limbs. The serial records from patients with measles were particularly instructive in demonstrating that the so-called normality or abnormality of a particular record can often only be judged in the context of a specific clinical question and in the light of other tracings from the same subject. This apparently mundane observation is nevertheless almost wholly neglected by referring clinicians and electroencephalographers in most departments.

The symposium, which was the fifth of its kind in seven years, was well attended, discussion was free and helpful, and a great deal of cross-fertilization seemed to take place between the different disciplines represented. The one sad feature was that, while people came from many parts of Europe and America to educate and to be educated, there were relatively few people present from Britain. It is very much hoped that the Institute of Child Health will continue to promote meetings of a similar character. Perhaps it can also persuade Regional Boards and Teaching Hospitals that this sort of education is eminently suitable for home-consumption.