TABLE N.—Showing Binary Combinations of Defects.

Total of Cases presenting each Sign Respectively.				Cranial Abnormalities.	Palate Defects.	Ear Defects.	Epicanthic fold.	Other Defects.	Condition not in Combination.			
Cranial Abnormalities.				B. G. T.	B. G. T.	B. G. T.	B. G. T.	B. G. T.	Cranial Abnormalities.			
In 10 public elementary schools	...	82	37 119	×	18 8 26	11 1 12	2 2 4	2 5 7	In 10 public elementary schools	...	62	25 87
„ 4 special schools	...	84	28 112		24 5 29	12 0 12	2 0 2	10 1 11	„ 4 special schools	...	29	17 46
166 65 231									91 42 133			
Palate Defective.									Palate Defective.			
„ 10 public elementary schools	...	35	18 53	18 8 26	×	6 0 6	4 5 9	2 0 2	„ 10 public elementary schools	...	11	7 18
„ 4 special schools	...	42	22 64	24 5 29		10 0 10	3 0 3	8 5 13	„ 4 special schools	...	11	13 24
77 40 117									22 20 42			
Ears Defective.									Ears Defective.			
„ 10 public elementary schools	...	36	13 49	11 1 12	6 0 6	×	4 3 7	4 0 4	„ 10 public elementary schools	...	19	8 27
„ 4 special schools	...	28	4 32	12 0 12	10 0 10		2 0 2	5 0 5	„ 4 special schools	...	9	4 13
64 17 81									28 12 40			
Epicanthic fold.									Epicanthic fold.			
„ 10 public elementary schools	...	24	19 43	2 5 4	4 5 9	4 3 7	×	5 0 5	„ 10 public elementary schools	...	13	11 24
„ 4 special schools	...	13	2 15	2 0 2	3 0 3	2 0 2		3 0 3	6 2 8	„ 4 special schools	...	6
37 21 58									19 13 32			
Other Defects than those above.									Other Defects than those above.			
„ 10 public elementary schools	...	37	10 47	2 5 7	2 0 2	4 0 4	5 0 5	×	„ 10 public elementary schools	...	11	5 16
„ 4 special schools	...	20	6 26	10 1 11	8 5 13	5 0 5	3 0 3		„ 4 special schools	...	12	1 13
57 16 73									23 6 29			

TABLE M.—Conditions of Defective Development in Relation to Low Nutrition, Mental Dulness, and Nerve Defects.

	Low Nutrition.	Mental Dulness.	Nerve Defects.
	B. G.	B. G.	B. G.
Total of cases presenting some defects of development, including cranial abnormalities, palate, ears, epicanthus, and other defects (not including squint): boys, 274; girls, 125; total, 399 ...	62 40	86 39	101 44
Cranial defects alone, not in combination ...	22 12	33 11	31 12
Palate defective alone ...	6 3	5 12	9 3
Ears defective alone ...	5 4	8 3	11 4
Epicanthic folds alone ...	1 5	3 1	1 2
The 73 cases with defects other than those mentioned presented ...	10 4	18 4	23 4
Cases of Binary Defects.			
Defects of cranium and palate ...	12 4	12 4	20 7
„ „ „ ears ...	6 0	11 0	12 0
„ „ „ epicanthic folds ...	—	1 0	3 2
„ „ „ other defects than those mentioned ...	5 3	6 2	6 2
„ „ „ palate and ears ...	2 0	7 0	6 0
„ „ „ epicanthic folds ...	1 0	2 2	4 2
„ „ „ other defects ...	0 1	4 2	5 2
„ „ „ ears and epicanthus ...	1 1	3 2	3 0
„ „ „ other defects ...	2 0	5 0	1 0
Cases of Triple defects.	B. G.		
The palate was examined in 459 cases:	24 7	11 6	14 2
It was found normal in ...	265 77	—	—
„ „ „ abnormal in ...	77 40	—	—
Defects of palate:			
Arched, narrow, high, or vaulted ...	68 37	29 13	22 20
V-shaped, not included above ...	6 2		29 16
Of the flat type ...	3 1		
	77 40		
Defects of ears:			
Symmetrical ...	37 13	12 2	13 2
Asymmetrical ...	27 4	5 2	11 2
	64 17		
Epicanthic folds:			
Symmetrical or double ...	27 17	5 4	9 6
Single or most marked on one side ...	10 4	1 1	1 0
	37 21		

brain, and particularly to watch the conditions of cerebral and mental development as the child grows up, and see that the circumstances, both hygienic and educational, are appropriate; in all such cases the family history needs to be carefully worked out.

These remarks apply not only to such gross cases as those referred to above, but also to lesser degrees of defective development as illustrated by tables given above. In connection with

the work of a committee appointed by the Section of Psychology 1888, I had occasion to examine 5,344 children,² in London schools; in many cases I had the advantage of co-operation with Dr. Hack, Tuke and Dr. Fletcher Beach. As shown in the report published,³ notes were taken of 809 cases, and of these visible defects of the body were seen in 399 cases; 274 boys, 125 girls. As some evidence in support of my general proposition, I have analysed this group of cases, and arranged the divisions so as to show their alliances with mental dulness, nerve defects, and low nutrition.

The facts given in these tables seem to strengthen the inference drawn from my earlier collection of cases of gross visible defects of the body, namely, that coincidence of defects in the development of the body is common, and that in such cases the power of brain-function is apt to be low and defective likewise. The suggestion as to practice in these cases is, that when visible defects in development of the body are seen, we should watch the signs of nutrition and growth of brain-power with some anxiety, and attend with great care, not only to the general hygienic conditions, but also to the physical and mental education.

THE OPERATIVE TREATMENT OF TUBERCULAR DISEASE OF THE KNEE-JOINT.

By WILLIAM THOMSON, F.R.C.S.I.,

Surgeon to the Richmond Hospital, Dublin; General Secretary to the Royal Academy of Medicine in Ireland.

THE more general methods of dealing with tuberculosis of the knee-joint, whether of the synovial membrane or of the osseous parts, are not satisfactory. Everyone here knows from experience how he has tried remedy after remedy short of operation, and the weary waiting that he has had for a cure that seldom comes. I do not wish to assert that cases of cure do not occur; but, so far as my own experience goes, tuberculous synovitis is next to an irrecoverable condition, at least among the poor, with whom hospital surgeons have most to do. The surroundings of their homes, the necessities of their mode of life, the impossibility of carrying out the ordinary treatment of rest, good air, nutritious food, etc., supply us with a number of cases which we have come to look upon as hopeless in the sense of saving the joint, or even of saving the limb with a stiff knee. That statement I make not only as the experience of myself, but I believe I may say of my colleagues also.

The knowledge that tuberculosis is a distinctly infective process; that its tendency is not only to invade neighbouring structures, but to produce distant deposits, makes it necessary that our treatment should be of a character to remove the source from which the mischief spreads. In the case of the young we are

² 5,344 children; 2,794 boys, 2,550 girls.

³ JOURNAL, July 27th, 1889.

¹ Read in the Section of Surgery of the Royal Academy of Medicine in Ireland.

dealing with a class of patients in whom the pathological processes partake of the activity which is going on in all the tissues. There is, therefore, the greater need of decision at a period early enough to give hope of eradicating the disease. Whether the starting point be in the bone or in the synovial membrane, the process of invasion is equally certain. The disease spreads from bone to synovial membrane, or from synovial membrane to bone. Not only so, but the extra-articular structures are also attacked, and not infrequently become involved in the general destruction.

Having, then, for our object the thorough removal of all reachable diseased parts, and the saving of the limb, I do not hesitate to say that excision of the joint is the operation which gives the best prospect of success. The remedy may appear to be a severe one, but, as in all other cases, the operation has in these days become comparatively safe.

It may not be uninteresting to refer to the first knee excision which was performed in this city. A writer in the *Lancet*, vol. vi, 1825, p. 29, describes the operation as done by Crampton:

"We happened to be present some time back at one of those scenes of scientific butchery at the Meath Hospital. The patient was a female; the complaint, if we recollect rightly, open scrofula of the knee-joint. A great concourse assembled to witness the operation; it was quite a gala day with the dissectors—a festival, seemingly, held in honour of the virtues of *steel*. It was the first time, we believe, that the removal of the knee-joint was attempted here. We earnestly hope it will be the last. The operator, of course, accomplished his purpose with his usual dexterity. But could he have beheld, as we did, the contorted countenances of the spectators, the knife would have fallen from his hand, never to be used where it was not more imperiously indicated. To be present was to be indeed a torture. One man vented his feelings in a wink; a second in a hem; a third overcame his sympathies in a forced fit of laughter;.....all, to be sure, admired, but all disappointed.....We saw this poor creature a long time after endeavouring to drag her limb with her by means of sundry wooden contrivances.....Let it be called by whatever name the sanguinary desperadoes of the profession choose, but we shall never be cheated out of our judgment, or fear to expose such practice when it falls under our observation."

Even thirty-one years (1856) afterwards we find Mr. Syme inveighing against the "vehement and persevering efforts which have lately been made to force into fashion two operations which are bloody and formidable," one being excision of the knee, and the other excision of the hip-joint.

All this is but a further illustration of how surgery has progressed since then. Fergusson in London, and Butcher in Dublin, by their successes, placed the operation upon sure ground, and we no longer look upon it either as bloody or terribly fatal. My own experience extends to seventeen cases, in which I have removed the joint for various causes in patients ranging from 4½ to 39 years, and in no case has a life been lost. In two, which were done some years ago, I had subsequently to amputate, but I have not seen this necessity arise in the last thirty cases in our hospital since we adopted the methods of fixation which we now employ.

Mr. Thornley Stoker has already brought before the Academy the plan of fixing the divided bones by silver dowels, and he now uses them in all cases; their advantages are very great, and I attribute much of our later rapid recoveries to them. It is unnecessary to describe them here; but I may be permitted to refer to the simple splint which I have now used for nine years in these cases.

In my earlier cases I employed Dr. Heron Watson's method; and in the *JOURNAL* of January 28th, 1882, I gave the reasons which induced me to adopt a simple modification of his splint. I found that a slip of strong hoop iron in front, with a loop over the wound, and a similar slip behind, allowed the plaster bandage to fit closely to the limb, and prevented painful movement of the bones. It was my habit to fix the splint with ordinary bandages for the first twenty-four hours, so as to permit the opening up of the wound in case of hæmorrhage, and then at the first dressing to apply the plaster-of-paris. A little experience showed me that the limb rested easily, and was firmly held by the ordinary bandage which, including the hoop-iron splint, could be closely applied to the limb. I then determined to try a case without any plaster whatever, and for some years I have not used plaster-of-paris at all. My colleagues observe the same practice, and it has been uniformly satisfactory. ♦

The splint I now use is made of strong hoop iron about an inch and a half wide. It is easily bent into any shape, and it is usually prepared by my resident pupil. The posterior splint is plain, and extends from the gluteal fold to the foot. At the tendo Achillis it must be bent downwards, so as to avoid pressure, and the continuation is brought up along the sole of the foot. It gives greater support, and enables us to bandage and fit the foot to it. The anterior splint extends from the groin over the thigh, is then shaped into a roomy loop, so as to give space for dressing, and is continued downwards towards the foot, being finally shaped to lie easily upon the instep. These splints are carefully padded beforehand, and the wadding is fixed in position by a spiral bandage. The wound dressing should be applied in front, and then be carried down on either side as far as necessary. The splints are then adapted, and are fixed by an ordinary bandage, and if this is properly employed it will not be necessary to readjust it for some weeks. The last thing done is to pack the popliteal space on either side with iodoform wool, taking care, of course, that the drainage tube delivers all fluids into antiseptic dressing. When the patient has been removed to bed the leg is swung from a strong cradle. Two turns of an ordinary bandage are passed through the loop and fixed to a bar in the cradle above, and another bandage is passed under the splint just under the ankle, and also fixed to a bar in the cradle. This permits the patient to make some movement if necessary, and, as I have already said, he is usually able to sit up in bed on the third or fourth day with a bed-rest, suffering no discomfort.

Several other plans of dealing with tuberculosis of the knee-joint by operation have been advocated. Injections and free destruction of the membrane by the actual cautery have each had their followers. The latest recommendation is that we should practise erosion of the diseased parts and gouging if necessary. The arguments in favour of this treatment are many; some of them are excellent in theory; but the results, thus far, are exceedingly unsatisfactory.

The principal advantages claimed for this operation instead of excision are these: first, that the movements of the joint may be preserved; secondly, that there is no subsequent shortening.

With regard to the first claim, I have to observe that all surgeons would be glad if they could secure movement in the joint. But movement is a very relative term, and we should like to have it defined strictly. There may be motion that is rather a disadvantage than otherwise, or we may have motion that is next door to fixity. Just let us remember what is done in these cases of so-called erosion. The whole of the synovial membrane is to be removed, diseased bone is to be gouged away, loose cartilages are to be clipped off, and, in a word, all diseased tissues are to be eradicated. Of course the operation may not be so extensive as this; but still I ask, If all that I have mentioned is done, may we reasonably expect a movable joint, and if so, what is the use of the beautiful arrangements that exist in our knee when they may be all removed without practically interfering with its function?

But the cases we read of show that the claim is after all based on very insufficient grounds, and that in practice it is not a desirable end to aim at. It has been found that there is a very great tendency to flexion of the limb, even so far off as a year after operation. We know that we have to guard against this even in cases of excision in young children. And therefore we are not surprised to learn, that as the result of experience this claim of movement is being gradually abandoned, and ankylosis is being sought for.

But why should it be attained in this roundabout fashion? Can it be secured as quickly between the articular surfaces of the bones, kept in fixed position, as between two level freshly-divided surfaces? Certainly not. It is, of course, said on the other side that we ought not to remove parts which are not diseased. That has only a certain element of truth about it, which may mislead us. I have seen cases in which, with cartilages looking perfectly healthy, we have found, on section of the bones, isolated necroses or nests of tuberculous matter. Now these are just the cases which the thorough-going eraser would regard as typically good for his method; yet, if the sections had not been made, we should have shut up the disease we wished to get rid of.

The second claim—that shortening does not occur—does not demand much examination. Those who urge it as a late danger in excision seem to forget that it sometimes occurs in cases where no operation of any kind has been attempted; and, therefore, it cannot be necessarily the result of excision. Of course, the

amount to be removed in one bone section simply depends upon the extent of the disease. We try to avoid any encroachment upon the epiphysary line, but we must do it if the disease brings us there. Our object is to save the patient's limb; and if we have to do that at the expense of much shortening, we cannot help it. But my own experience has not been of this kind; and I believe it will be found that this misfortune is ideal in the great majority of cases.

I believe that once we determine upon cutting open a knee-joint in general tuberculosis of the synovial membrane, we had better go the whole way, and perform the ordinary excision. The operation is, I maintain, safer and more satisfactory in its general results than erosion. My own hospital experience, and as far as it extends to the practice of my colleagues, is a mortality of one in over fifty successive cases. That leaves little to be desired; and I am satisfied that the patients who have been submitted to excision of the joint have on the whole been better treated than if they had undergone exploratory incisions and tentative scrapings at the hands of a surgeon.

ON DISEASE PREVENTION.¹

By STANLEY HAYNES, M.D.,

President of the Worcestershire and Herefordshire Branch.

I HAVE thought a few notes on disease prevention as influenced by medical politics might be acceptable for your kind consideration, and it is with this hope that I venture to solicit your patient attention and forbearance for a few minutes.

County Councils.—My chief reason for bringing this subject forward now is because I believe that if we combine, as by means of this and other Branches of the British Medical Association, to endeavour to influence the County Councils, created by the new Act, in the direction of public health there seems, now and in the near future, to be a very favourable opportunity of exerting our knowledge and strength to some beneficial purpose. For instance, the Branches might request County Councils to recommend the District Councils to amalgamate in the appointment of medical officers of health; and the continuance of the faulty system of each local board and sanitary authority appointing its own separate health officer should be discontinued, as by a County Council intimating that it would instruct auditors of district accounts to disallow the salaries except for sufficiently combined areas: this would soon cause combination of districts and the appointment of skilled medical officers of health for large districts; they should receive good incomes (beginning at £600 per annum, with allowances for expenses) and be prohibited from private or other practice. It is gratifying to observe that many medical men have been nominated for election on the County Councils, on which they will do much to advance State medicine and the interests of our profession in public work. Let us wish them all success in their candidatures. The medical members of County Councils could bring forward, among many other measures, the desirability of having a Minister of Health in the Cabinet, and the fixity of tenure for medical officers of health.

Disease Notification.—The compulsory notification of diseases has, with few exceptions, been so satisfactory that this seems one of the matters we should endeavour to extend. I am one of those who consider this notification, when made by medical men, should be rewarded by fees paid by local authorities, and that the penal clauses adopted by some towns (and very curiously acquiesced in by their practitioners) are uncalled for, are derogatory to the dignity of our profession, and calculated to arouse opposition against such publication of illnesses. Such notification should be made by the householder.

Inherited Disorders.—Hereditary tendencies to disease and crime and alcoholism should be repressed as far as possible. The strict fulfilment of the Inebriates Act would do something to lessen drunkenness, idiocy, insanity, epilepsy, and other neuroses in the next generation. So far as we can we should discourage the marriage of persons with histories of cancer, consumption, syphilis, and alcoholism. Convicts should be detained in penal servitude during the full terms of their sentences, in order that they might have fewer opportunities of transmitting criminal propensities: the cost of this to the taxpayers would be minimised by the adoption of the beneficent industrial system in successful operation in the Indian and Burmese convict service.

Vaccination.—Vaccination and revaccination should be compulsory and enforced. The recent memorandum issued by the Local Government Board on revaccination is an important authoritative indication of the value of this procedure, and it is to be hoped both the public and vaccinators will avail themselves of the facilities rendered by this salutary action of our Government.

Inebriety.—One of the pressing wants of the community in the prevention of disease is compulsory power to place inebriates, of all classes, in homes provided for their reception and superintended by physicians. These homes, for the middle and lower classes at least, should be industrial. The Inebriates Act lately passed is a slight improvement on the Habitual Drunkards Act (chiefly, in name) but, while thankful for small mercies, we should regard it as only an instalment towards wiser legislation, because it does not go far enough. Some of our colonies and the United States Government are far ahead of us in regard to this legislation. Power is wanted here for the isolation of inebriates for twelve months as a minimum: no appearance before a magistrate should be necessary, but notices of admission, in writing, should be posted, within twenty-four hours, to the Clerk of the Peace and to the chairman of a visiting committee of magistrates, three of whom should visit each inebriate so segregated. Grocers' licences to sell intoxicating drinks should be revoked, and it should be penal for any grocer or unlicensed tradesman to give such drinks to any customer or servant of a customer.

Leprosy.—Leprosy has attacked some of the populations of Queensland and Natal. Those and any other countries under British rule should have power to separate those afflicted with the disease, some interesting notes on the spread of which in Spain appeared in the JOURNAL of January 12th, 1889. Norway and Hawaii have set us brilliant examples in this respect with great success. As an example of the ignorance prevailing concerning the contagiousness of leprosy, it may be mentioned that last year an action was brought—happily it failed—against the head master of one of the largest schools in Scotland, because he had refused to receive a boy suffering from that disease.

Veneral Diseases.—Those conversant with the state of our ports and of our troops in India can, unfortunately, give too ample evidences concerning the alarming increase of venereal disorders resultant on the suppression of the Contagious Diseases Act, the medical men testifying to the type as well as the frequency of such maladies, while the police know how prostitution has increased, and how young girls—that is, from 12 to 15—who, while the Act was in operation, were kept off the streets, are now found on them, as before the enactment.

Coroners.—Coroners should be selected from medical men only, and be prohibited from practice, their districts being made sufficiently large to furnish adequate salaries. This is one of the topics on which our profession could appeal to the County Councils.

Cremation.—Cremation (on which Sir Henry Thompson wrote in the *Contemporary Review* in 1874, and the first lecture on which by a medical man was, I believe, delivered by myself—in 1876) is gaining ground rapidly amongst the educated and thinking portion of the community; but we are far behind some of our European neighbours and transatlantic cousins in resorting to this healthful mode of disposing of the dead. This is a reproach under which we should not be satisfied to rest. Some very necessary attention to cremation has lately been given at Glasgow, while an urgent need for the process has been revealed in Edinburgh. At Glasgow it is calculated the actual incineration would be completed in half an hour, at a cost of 2s. only each body; at present the ratepayers are paying 13s. 11d. for each pauper interment. A hundred persons have joined a Cremation Society in Glasgow; it is to be expected this enlightened undertaking will be speedily followed by other centres of population, in consequence of the horrible revelations recently made in connection with burial. Incineration of corpses is as necessary for the lessening of human disease as for the prevention of maladies in our cattle; its extension and general adoption would, besides diminishing the spread of many kinds of illness, prevent the serious risks to health now incurred by mourners, ministers, and others assisting at funerals. Burial in brick or stone graves should be absolutely prohibited by the Home Office, while medical practitioners should do all they can to cause the substitution of quickly perishable coffins in place of the massive ones now too frequently used, when cremation is impracticable.

Isolation of Infectious Diseases.—The JOURNAL of April 30th,

Abstract of a Presidential Address read before the Worcestershire and Herefordshire Branch of the British Medical Association, at Malvern.