cells than normally should be the case. It is equally confirmatory that Berry and Porteus in Victoria, and Morris Miller in Tasmania, have been able to substantiate the fact, from an examination of many thousands of cases, that about two-thirds of the known antisocial group possess appreciably smaller heads than the normal, which is, of course, a macroscopic and clinical confirmation of Bolton's microscopic studies.

This definitely measurable thinning of the cerebral cortex occurs chiefly, according to Bolton, in the frontal region, and chiefly affects the pyramidal-celled supragranular cortex, and these observations of Bolton are generally confirmatory of the earlier and more primitive work of Batty Tuke and other alienists. Such a cortical thinning denotes, as stated, a diminished number of cortical neurons, and a diminished number of cortical neurons equally connotes an altered reaction to the environment. Many human individuals pass into the complexities of adult life with an undeveloped, partially developed, or irregularly developed pyramidal-celled supragranular cortex. They possess the sexual and physical appetites of the adult with the brain of control of the child, and it is futile to expect from such abnormally constructed individuals that normality of conduct as regards sex and respect for the property and welfare of others which constitutes the essential basis upon which all civilized society rests. The bulk of them are aments and will remain aments, and their social reactions will be the final product of their environment. With such an undeveloped and unstable mental or cerebral structure they may succumb earlier, and in larger numbers, to the stresses and strains of a complex civilized life, and thus swell the populations of our poorhouses, police courts, mental hospitals, gaols, benevolent homes, and the like. They thus add to the financial burdens of the fit, and aided, as they so frequently are, by a misguided charity, may not improbably eventually poison and destroy civilization itself.

A minority of this group, those with an apparently irregularly developed cerebral cortex, form an even more dangerous section of society, the more so because they are frequently mistaken for people of ability, and defy most of the known or recognized tests for amentia.

Many forms of abnormal mental reaction are probably not so much due to disease as to aberrant cerebral development, with a consequent disordered reaction to the environment. Debates on the relative importance of heredity and environment are many. The human brain is the product of both. Mentally deficient parents will breed similar children, and will do so in larger numbers than is good for society, and for obvious reasons. Lacking an adequate brain of control, they obey, like the animal, the dictates of nature, and give free rein to the passions of the body. Developmentally, and in the normal individual, the neuron or brain cell undergoes a series of embryological changes, without which it cannot function. At birth the cerebral cortex, and particularly the pyramidal cells of the supragranular cortex, are largely in a neuroblastic, non-functional condition, and hence the mental reactions of the newborn child tend to resemble those of the idiot. With the incoming of the exteroceptive stimuli, particularly those from light and sound, a necessary factor for the conversion of the non-functional neuroblast into the functional neuron is introduced. The environment, therefore, materially affects, not only the nature of these stimuli, but also brain growth itself. If, for example, the acoustic exteroceptive stimuli be completely cut off, the child becomes a deaf-mute, with a thinner acoustic cortex and a correspondingly diminished general intelligence. If both visual and acoustic stimuli are arrested the child may become an idiot from deprivation of its senses, because stimuli important to the conversion of neuroblasts into neurons are lacking—always assuming, of course, that no other form of "education" takes the place of these important "senses." If, again, the child be in such an environment as to encounter only obscene words, criminal acts, and the expression of perverted thoughts during this most important formative stage of cerebral development, there can be only one result—antisocial reaction at a later stage. Education is the establishment

of neuron habit, and that, in its turn, is the result of the environment. Education—that is, the environment—thus plays an important part in brain growth and mental development, but if the machine be so imperfectly constructed from the beginning as to make it incapable of receiving the necessary number of stimuli, then some severe degree of amentia must persist throughout life. If this be very pronounced the law will probably demand the segregation of the child as an imbecile, but if it be not so pronounced, or be obvious only to the adequately trained neurological expert, the child will be passed into the complexities of a civilization for which it is quite unfit, there to perform those bodily acts regarded as criminal by the more normally constructed members of society. All scientific evidence thus seems to show that mental phenomena are the result of an adequate number of exteroceptive stimuli being received by an adequately constructed cerebral cortex—environment and heredity. The first place to seek for mental abnormality of all kinds, and certainly those which are commonly classified as antisocial, are the cells of the human cerebral cortex, and this study demands co-operative national effort.

That there has not hitherto been any co-operative effort to study the mental abnormalities appears to be due to a lack of appreciation of the simplicity of the great principles underlying the construction of the vertebrate neuraxis, and the present-day somewhat illogical position of the study of the nervous system may not unfairly be represented thus:

<i>Structure.</i>	<i>Specialty.</i>
1. Receptor neurons	Diseases of the nervous system.
2. Internuncial { Normal	Psychology.
{ Abnormal	Psychiatry.
3. Effector neurons	Diseases of the nervous system.

To divide a functional entity, like the neuraxis of man, into a series of watertight, non-correlated specialities appears to be unscientific and calculated to breed error. It is rather unity of study which is so essential; and the future integrity of the nation appears to demand the establishment of a national laboratory for the study of cerebral and mental abnormality. Even though the critic may be indisposed to accept the statements herein briefly mentioned, he must in fairness admit that there is sufficient suggestive evidence to warrant further inquiry, and the magnitude of the problem justifies a national effort.

TREATMENT OF LUPUS VULGARIS.

BY

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DURING the last four years almost exactly 4 per cent. of the patients treated at the dermatological clinic of the Royal Infirmary, Cardiff, were cases of lupus vulgaris, the proportion of males to females being a little more than two to three. The methods of treatment used have been pyrogallol ointment, acid nitrate of mercury (as recommended by Adamson), salicylic acid and creosote plaster, x rays, ultra-violet rays, and alkaline phenol followed by a hypertonic dressing as described below. Of these x-ray treatment has been little employed as the results were slow and uncertain. Ultra-violet rays applied by the Kromayer lamp locally, combined with general irradiation, have been disappointing, as cases which did not readily yield to other methods failed to respond, and where they would doubtless have been efficacious the other methods gave quicker results. Salicylic acid and creosote plaster acted well in some cases, but was slow.

Pyrogallol ointment 5 to 10 per cent. proved valuable if thoroughly applied for a long period. One case—a girl aged 13—had when first seen a wide band of lupus on the left thigh, a smaller area about the right gluteal fold, a large area on the left shoulder, and wide areas on the cheeks and nose. The treatment was carried out by a friend, who described rubbing the areas with the ointment till they

bled. After four years the disease has disappeared, only superficial scars being left. Some other patients to whom this ointment was prescribed only benefited slightly. In these, investigation showed that the pain of the application and the slowness of the rate of progress had caused them to neglect its use.

One merit of the acid nitrate of mercury and the phenol methods is that, being applied by the physician himself or under his direction, and only in hospital, there is no question of the thoroughness of the application.

The objections to the caustic nitrate are considerable. Its application is intensely painful and the caustic action is comparatively unselective, so that sound tissue is apt to be destroyed as well as diseased tissue. It is applied in this clinic on cotton-wool pencils or by means of pointed match-sticks dipped in the fluid; the latter are used to perforate and destroy nodules. The value of the method appears to be limited to areas where discrete nodules can be distinctly made out, otherwise destruction is extensive and unsightly scars are left. The pain is so great that it demands considerable fortitude on the part of the patients (local anaesthetics applied to the surface reduce but do not abolish the pain), and they are therefore apt to cease attending before the treatment is completed. Nevertheless the nitrate or some equivalent caustic seems to be indispensable for exuberant or deep-seated nodules, and for dealing with the nodules which survive the phenol treatment.

The application found most generally useful is alkaline phenol followed by a hypertonic dressing. With the co-operation of Mr. J. T. Williams, pharmacist to the infirmary, the following formulae have been worked out. In a 4 c.cm. wide-mouthed sample bottle stoppered by a rubber cap are placed 2.5 c.cm. of a solution of caustic potash (1 part to 2 of water) in which is suspended precipitated chalk (1 part), and 1.5 c.cm. of acidum carbolicum liquefactum. A considerable degree of heat develops. The preparation is made in small amounts because oxidation takes place with resulting brown discoloration after a few days' exposure to the air over the fluid. When the phial is filled this does not occur to any extent, and there is enough of the preparation to treat several patches. It is better, however, to keep the caustic potash preparation separate from the phenol and mix shortly before use. Fresh preparations are thus always conveniently available. A pencil of cotton-wool wrapped round the point of a forceps is dipped in the fluid and the area rubbed. The caustic potash dissolves the epidermis and the abrasive action of the precipitated chalk aids in its removal. As the rubbing is continued the lupus nodules start out as purple spots, and nodules not previously noted can be detected. When these purple spots are well marked the application is stopped; if it is continued the whole area will turn a purplish-black. The colour appears to be due to haematin formation by the alkali.

A piece of unmedicated lint is cut of the size of the area of disease, and on this is placed a fairly thick coating of a paste consisting of equal parts of salicylic acid, sodium salicylate, and cane sugar, with enough glycerin to make a soft paste. This is applied to the area treated and the whole covered in with zinc oxide adhesive plaster, which overlaps for some distance on all sides so as to make an impervious dressing.

There is a good deal of pain during the application of the alkaline phenol, but the anaesthetic action of the phenol soon removes this. Later in the day a fair amount of pain is to be expected, and after a day or two exudation finds its way out from under the dressing. The application is repeated twice a week, in most cases for four weeks, though not so long for superficial cases. On the removal of the first dressing a granulating surface is found, no lupus nodules being visible, but if the wound were allowed to heal some nodules would be found. Repetition of the treatment is therefore necessary, but after the first treatment touching with the alkaline phenol or slight rubbing only is required. After the last treatment the place is allowed to heal up under boric ointment.

Superficial areas are often cured in six weeks, approximately, but when the nodules are deep-seated or the type is exuberant complete cure does not occur so soon. A

great reduction, however, in the amount of the disease takes place. It is usual to repeat the treatment if the nodules left are numerous, so as still further to reduce them; if few and discrete they are treated at once by acid nitrate of mercury.

In spite of the strength of the carbolic acid and the size of the areas treated—in one case both cheeks were under treatment at the same time—no sign of carbolic acid poisoning has occurred; this I attribute to the hypertonic dressing causing the flow of lymph to be outward, not inward.

In two cases excessive destruction took place, producing superficial sloughs. In one there was no indication that this might occur. The other was that of a woman whose leg had been amputated for tuberculosis; her general reaction was poor, and cure has not been obtained. There is, therefore, some risk in the method.

The principle of the treatment appears to be that diseased tissues are less resistant to caustics than healthy, and that therefore, if the proper strength is found, healthy tissues will not be seriously damaged. I have repeatedly seen islands of healthy tissue in the middle of the ulcers produced. Caustic potash alone would act, but the anaesthetic action of the carbolic acid is valuable. The hypertonic dressing might be composed of other substances. I have used a boric acid, magnesium sulphate, and glycerin paste with success.

This is the routine treatment applied in almost every case in this clinic, and disappearance of the disease has been obtained in cases of many years' standing—up to fifteen or more. It fails, however—or at any rate is only partially successful—where the impervious dressing cannot be properly applied—for example, on the nose, or close to the eye. For these places it must be supplemented by acid nitrate of mercury or other powerful caustic, or perhaps by ultra-violet rays. It does, however, prepare the way for these by reducing the number of nodules. It has with the others the great merit that its application does not depend on the patient's perseverance, except so far as concerns his attendance at the clinic, and in this respect there is no difficulty—patients are eager for the treatment. For success personal supervision by the physician himself, attention to details, and experience of the resistance of the skin, which varies in different parts of the body, all appear to be requisite.

A CASE OF ERYTHROEDEMA OR "PINK DISEASE."

BY

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SINCE the clinical picture known as erythroedema, erythroedema polynuritis, or "pink disease," is seemingly, from the available literature,¹ a somewhat rare condition, I have taken detailed notes of a case which came under my care lately.

An only child, a boy aged 2 years and 8 months, was brought to Colwyn Bay in July for a holiday from Lancashire. His parents, who are both quite healthy, said that he was an active and normally healthy child until a fortnight or so before they left home. He then seemed to lose appetite, would not play by himself, wanted "petting and coaxing," and often asked to be carried. He had one or two attacks of vomiting, but there were no marked symptoms, and the parents thought that he was "a little run down and that the holiday would soon put him right."

On the day of his arrival he asked for an ice-cream; this was given to him and there seemed to be no immediate ill effects. On the next day he complained of severe abdominal pain and vomited once, and when I saw him for the first time he presented the usual picture of intestinal colic in children. He had spasmodic abdominal pain, and the temperature and pulse rate were slightly raised. Examination of chest and abdomen was negative, but on rectal examination constipated faeces could be detected. He was given a small dose of calomel, a small olive oil enema, which had a good result, and ordered boiled water only.

The next morning (July 22nd), after a good night, the abdominal pain had gone, the bowels had been moved with a slightly greenish stool, the temperature was 101°, and respirations between 40 and 50; the alae nasi were active, and although on examination the chest still seemed healthy, his condition suggested early pneumonia without physical signs, as is common in a child.

A mild diaphoretic mixture was prescribed, and powders containing a sixth of a grain each of calomel and Dover's powder were