

mes, for by causing cell death they indirectly give rise to the auxetics which cause cell proliferation or even tumour.—I am, etc.,

London, S.W., Feb. 12th.

H. C. ROSS.

SIR,—As Mr. Prosper H. Marsden does not give Gerarde's *Herball* as a reference for the use of comfrey in former times, I would like to mention that Nich. Culpeper seems to have derived most of his account from that source, according to the edition published in 1636, as amended by Thomas Johnson, a copy of which I possess.—I am, etc.,

R. ATWOOD BEAVER, M.D. Vict., M.B. Lond.  
Clifton, Feb. 12th.

#### SYMBIOSIS.

SIR,—As the important question of the definition of *symbiosis*, raised by Mr. H. C. Ross in his letter which appeared in the BRITISH MEDICAL JOURNAL of January 6th last, has not yet elicited any reply, I beg leave to refer him to a treatise wherein this subject is dealt with at some length by Dr. J. McFarland.<sup>1</sup> This author suggests, I think very rightly, that *parasitism* is a form of *symbiosis*, and not the reverse as suggested by Mr. Ross, whose definition, in the light of recent research, does not seem to me to be adequate.

McFarland subdivides *symbiosis* into *commensalism*, *mutualism*, *helotism* and *parasitism*. The third of these subdivisions, *helotism*, is, I venture to submit, important in a medical evolutionary sense, having regard to those micro-organisms which constitute the normal flora and fauna of the human muco-cutaneous periphery. Certain of which, it is true, are known to become pathogenic on gaining ingress through accidental breaches in the epithelial continuity, or by becoming implanted in regions to which they have not been habituated. It is conceivable that at an early period of mammalian evolution the *Bacillus lacticus*, for example, may have been pathogenic; that during a later stage in the evolution of their hosts the latter became "carriers" of them, till in more recent times these organisms, in the opinion of certain high authorities, have become functional necessities of their hosts, by suitably modifying the chemical decompositions in the regions to which they have become habituated. In this form of *symbiosis* the leucocyte is supposed to enslave its erstwhile enemy, and enforce it to labour on its behalf.

This conception appears to me rational and in conformity with science, though to the superficial reader it will doubtless appear the very height of romance. But "truth is stranger than fiction."—I am, etc.,

London, W., Feb. 8th.

H. D. McCULLOCH.

#### SIR JAMES BARR AND THE INSURANCE ACT.

SIR,—To fully meet the criticisms of Dr. Rugg Gunn, contained in his letter in your issue of February 10th, would require an essay on social philosophy of which I am not capable. I should not have thought that the almost platitudinous propositions of my letter of January 13th could have called forth so confused a medley of criticism as is contained in Dr. Gunn's letter.

In stating that "the interaction of mixture, heredity, and environment is as yet practically unknown in human affairs," I did not overlook the Mendelian discoveries and experiments, nor the application of the Mendelian principles to man. No doubt the future of human genetics lies largely in elucidating these principles, but at present even so enthusiastic a Mendelian as Professor Bateson hesitates, for he says in his *Mendel's Principles of Heredity*:

In regard to some of these wide departures from expectation shown in many pedigrees of human diseases and defects, it is, I think, still open to question whether the transmission is a process comparable with that which we ordinarily designate as heredity.

I am as fully appreciative as Dr. Gunn of the importance of innate characters, and I am confident that, when human genetics is as well established as sanitary science, society will endeavour to control its own composition just as at present it is endeavouring to control its environment by dealing with public health and social reform.

<sup>1</sup> *Biology, Medical and General.*

Future legislation and social action based on genetic physiology for the purpose of multiplying and propagating the worthy elements of the race will simply be an extension of our present-day social legislation, which really has its springs in the discoveries of modern science. These place in men's hands the power of controlling that environment, and this power is being used. Farr, Koch, Pasteur are probably more responsible for the Insurance Act than Dr. Gunn imagines. After giving qualified assent to his references to Mendelism I am utterly at a loss to understand his final appeal to Lao-tzu (600 B.C.). The *laissez faire* wisdom of that Chinese philosopher is utterly opposed to modern science, whether it deal with heredity or environment. A social theory based on *laissez faire* is utterly opposed to a social theory based on Mendelism, bacteriology, and modern science in general. How Dr. Gunn can advocate both in the same letter puzzles me. Even China herself has thrown over Lao-tzu (600 years B.C.). Under the pressure of Western civilization she has gone so far as to establish the constitution of a Republic and to pass laws to prevent her citizens from poisoning themselves with opium. We may even hope to see before long a Chinese Lloyd George introducing a State Insurance Act to the Chinese Parliament, and expounding with Oriental eloquence his plans for bringing refreshing fruits to parched lips. As a disciple of Lao-tzu (600 B.C.) Dr. Gunn will soon be a lone voice in the wilderness crying aloud, "Govern a great nation as you would cook small fish, that is, don't overdo it."

My statement "that most legislative enactments dealing with health and social reform are of the nature of experiments, whose ultimate outcome from the racial point of view cannot be predicted," hardly needs defending, in spite of the quotation from the elaborate investigation by Drs. Davenport and Weeks. The statement follows from the recognition of the difficulty of the problem dealing with the transmissibility of acquired characters and of our ignorance how far environment suppresses or brings to light genetic qualities; and further experience shows that these Acts are continually being modified by repeal and amendment. I cannot follow Dr. Gunn in his classification of society into "two natural divisions—upper, intelligent, disorganized, disunited, and devoid of proper leadership; and lower, non-intelligent, united, organized, led." It seems rather paradoxical, and I only hope he does not include the medical profession in the first division.

If I may make so bold, I would warn him against classification, which in the past has proved so formidable a barrier against sound speculation.—I am, etc.,

Warrington, Feb. 12th.

J. S. MANSON.

#### THE DANGERS OF ALCOHOLIC INSANITY.

SIR,—So much controversy has taken place as to whether drink does or does not ultimately lead to insanity, that the very important point is apt to be forgotten that drink does undoubtedly cause insanity—alcoholic insanity.

The main point in connexion with alcoholic insanity, on which those who deal with it are pretty generally agreed, is that the law dealing with such cases is hopelessly inadequate. These patients usually find their way to the lunatic wards of the workhouse infirmary, and workhouse medical officers often complain that cases of alcoholic insanity, with homicidal or suicidal tendencies, are readmitted to the insane ward two or three times in the same year, and the probability is that they are positive dangers to society on many other occasions.

The trouble is that this form of insanity is of such a fleeting nature that the patient may be all right next morning after a night's rest, or the dangerous symptoms may pass off in an hour or two, so that only those who have actually seen the patient at the time could state that he had suffered from temporary insanity. This, of course, would lead to great difficulty in certifying under the present regulations.

When a man is discharged from an asylum as "cured" he either remains permanently "cured" or for a reasonable time, but alcoholic insanity is such a curable form that it becomes one of the most incurable and dangerous, as the patient is again allowed to mingle in society with unlimited opportunities of again becoming a lunatic at any time.

If a man is admitted as a lunatic on a "fourteen days' order," it hardly seems fair to the man himself or to

society to discharge him at the end of the fourteen days, however sane he may appear; and it hardly seems just to treat a man as a lunatic on one occasion and as a criminal on a subsequent occasion, when he was really irresponsible for his actions. The point as to whether he should be held accountable under such circumstances I will not discuss, but I think the State should hold itself responsible for the actions of those who are known to suffer from such a frequent form of recurring lunacy.

The following case serves to illustrate some of the points mentioned:

A man was detained as an alcoholic lunatic on a three days' order, and on a subsequent occasion he came into the tramp ward of the workhouse at night in a state of alcoholic excitement. Without any provocation he turned suddenly on the night attendant, knocked him down and gave him a terrific hammering, and might probably have made an end of him if the day attendant had not heard his shouts for help, and rushed to the rescue. The man was sentenced next day as a criminal to a short term of imprisonment, but if he had been detained in the first instance that would not have happened, and society would know that there was no possibility of further crimes. But similar or worse crimes may occur on his release. In such cases, once a lunatic always a lunatic, is pretty generally true, and a fourteen days' detention order should be changed to a much more permanent form.

The number of murders and suicides accounted for by drink is so great that something more drastic than the present arrangement is urgently called for; and when a man who in other respects has been quite exemplary commits a crime when "mad with drink," and has no proper recollection of it next morning, or when he has sobered down shortly after the shock of the accident, he can hardly be held entirely responsible for his actions, and certainly not if he has been certified as a lunatic before.

Undoubtedly alcoholics are dealt with under the Inebriates Act, but as a rule such cases (which usually swell the ranks of peripheral neuritis) have been before the magistrates thirty or forty times, and are more of a nuisance than a danger to society.

It seems a big business, but, after all, the number of alcoholic lunatics as compared with the total number of "drunks" is very small, and the benefits to society in general would be of such an incalculable nature that it would undoubtedly be worth while. It would be an excellent tonic to society. The friends who have to live with the patient do not, as a rule, regard the fourteen days as sufficient, and quite commonly at the end of the period they come and say, "Are you sure he's all right now? Could you not keep him a little longer?" I certainly think that the present conditions are unsatisfactory.—I am, etc.,

JOHN M. MACPHAIL,  
Assistant Medical Officer,  
Eastville Workhouse, Bristol.

February 6th.

#### THE NATURE AND ORIGIN OF CANCER.

SIR,—In a letter published in the JOURNAL of February 10th Dr. Brock endeavours to disprove my hypothesis of the existence of a *material* governing secretion by pointing out "that the agency which regulates and controls the disposition of the cells in the body obviously exists in the developing embryo, before the three glands which he names have appeared, and that it therefore cannot possibly be made up of their secretions." I would remind him that the fetus is part and parcel of the mother, and that it derives its nourishment from the maternal blood, where the secretions already exist.

Where I differ from Dr. Brock is that he looks upon the regulating agency as some "force" or "law" which is supposed to be inherent in every organism, and is the cause not only of its first development but of its subsequent maintenance in a state of health. This is a happy assumption, involves no serious thought, and can be used to explain many difficult problems. But does it not savour more of common sense, while knowing that there is a causative force of some kind in life, to recognize that it acts through a *material* instrumentality—the organism—with the physiology and pathology of which we are only concerned? Should, say, part of the machinery in a cotton-mill break down, the engineer in charge will

promptly disconnect and repair that part; if, however, all the machinery stop, he knows that the motive power, the "actuating force," has gone—the mill is lifeless. Similarly, in the human organism, we try to remedy any defects in the machinery, which we cannot properly do without first knowing the machine; the "actuating force" is beyond the province of the materialist, and I have not heard of a psychologist restoring the dead to life.

The body is, after all, a mass of protoplasm, an extremely complex chemical substance, or rather mixture of chemical substances, constantly undergoing katabolic and anabolic changes of a chemical nature—material enough, in all conscience.

Dr. Brock flatters me when he calls my theory a "scientific explanation." It has only reached the stage of a working hypothesis. At any rate, its application has been effectual in saving the life of a woman suffering from cancer of the oesophagus. Surely far better this than groping hither and thither in a psychological fog, with the patient meanwhile slipping through one's fingers.—I am, etc.,

Wigan, Feb. 12th.

J. THOMSON SHIRLAW.

SIR,—Dr. Brock has quoted a parenthetical remark of mine as if it were my main point. When I said that the multinuclear giant cell was the "managing director" of cell activity, I referred, of course, to the cell activity which is coexistent with irritation and antecedent to the formation of cancer. The point I wish to emphasize is that the germ cell of cancer is the product of the conjugation of a sperm with a tissue cell. It is undoubtedly a fact that the germ cell is a fertilized tissue cell, and I offered the suggestion that, as multinuclear giant cells are found wherever there is cell activity, the microzoon required to connect the chain, and to fertilize the tissue cell, is a discharged nucleus from a giant cell.

I am well aware that, in Dr. Archdall Reid's words, "every hypothesis is a mere guess until every other alternative hypothesis has been considered, and until it has been demonstrated that only the chosen hypothesis accords with the whole of the available and authentic evidence," but as I have not the opportunities for experimental investigation, I consider that the scientific use of the imagination need not be kept under such severe restraint, and, therefore, I invite others to apply the tests of the phenomena of cancer to this hypothesis.

Since I last wrote to you, sir, there has passed away from among us a great master mind. Sir Henry Butlin's researches and observations on this subject have directed our knowledge into its present channel, and were, indeed, the starting point of this discussion. From him, my old master, I acknowledge with gratitude I received not only my first lessons in clinical pathology twenty-two years ago, but also much counsel and many kindnesses almost up to the last. Words would fail me if I attempted to describe my admiration for him and for his methods of precision. We have now but the recollection and the example of him left, and the legacy of his writings. In his last lecture he referred to an intention of publishing some further phenomena of cancer. It would be interesting to know whether there is any record of these, and whether he committed to writing any further thoughts arising from the published correspondence in your columns.—I am, etc.,

Stowmarket, Feb. 12th.

H. T. DUFTON.

#### SWEETS IN CHILDHOOD.

SIR,—A point of as much, if not of more, consequence than the effect of one or of another carbohydrate on the teeth appears to me to be the relative influence of deficiencies in the mouth, and defects in their structure. The tendency of starchy and sugary food to "stagnate," as Mr. Turner says, among the teeth is increased by a shortening of the jaws and consequent overcrowding of them, and is thus an illustration of the circumstance that decay is not independent of influences additional to those in the mouth.

Whatever difference in opinion there may be as to the causation of caries, there is, I think, insufficient ground for Mr. Hopewell Smith's assertion quoted by Dr. Hildesheim, but on the contrary it has, in my belief, been already largely determined by dental surgeons, and rests