

In view of this, any further attempt to prove that the nerve fiber conducts impulses in the same way that a wire conducts an electric current is merely a waste of time.

I do not mean to imply that the considerations mentioned in the paper of Hughes and King about two-phase systems of immiscible liquids and interfacial tension are not significant. They are doubtless highly significant. A careful study of recent papers by Lillie and Adrian will show the strong probability that the conduction of the nerve impulse depends on a semi-permeable state of the membrane surrounding the fiber and on the electrical difference of potential resulting therefrom. This semi-permeable state of the membrane in turn may probably depend in part on certain features of a two-phase system. Furthermore, experiments with narcotics are among the most likely to throw light on the important problem of the ultimate nature of the nerve impulse, but they should be conducted with due consideration for the great mass of facts already accumulated by a number of the ablest scientists of modern times—facts and principles which have already gone a long way towards giving us a picture of the nerve impulse. The neuropathologists and the psychologists already have something of a basis on which to work; but future research, coordinated with past research, will greatly strengthen this basis. In this work there is room for chemists, physicists and physiologists alike, if their work be properly coordinated.

ALEXANDER FORBES

### WHAT IS A WEED?

THE word "weed" is usually defined as a plant growing out of place. This conception is not easily tangible for the following reasons:

(1) An innocent inquirer may think of a plant being out of place, in one or two respects—(a) As out of its natural habitat; for example, Jack-in-the-Pulpit in an open dry field, or, pigweed in a moist shaded forest; (b) As growing where some human being wishes it not to grow; for example, Bouncing Bet in the cabbage patch, or, rye in the wheat field. This latter conception (b) doubtless expresses the virgin idea of the formal definition, "A weed is a plant growing out of place."

(2) If so, we have an odd rule, under which any plant in the universe may instantly become a weed without the slightest change in character, habitat or position. Under this rule, a plant is a weed, not according to specific qualities nor by a definite concept in the mind of any man, but by human caprice; for example, the sugar maple trees become weeds when some man wishes to convert the grove into a corn field.

(3) To say that a weed is a plant growing out of place is to include in the weed realm all obnoxious parasitic plants. This is objectionable for two reasons: (a) In actual practice no person thinks of those dependent plants that cause wheat rust, corn smut, etc., as weeds. However, these species constantly grow where human beings wish them not to grow, but they are *parasites*. (b) A parasite has the definite distinction of drawing its food detrimentally and directly from a host, but to speak teleologically a weed is an honest, independent competitor for food materials in the "struggle for existence."

What seems, therefore, to be a more workable conception of a weed may be stated as follows: "A weed is an independent plant whose species is persistently obnoxious on cultivation areas." The salient words in this statement are "independent species persistently obnoxious," and these four words may be taken as a definition of a weed, as against the salient words in the old definition—"A plant growing out of place." In this new definition all parasites are excluded, and weed-craft is confined definitely to independent species that are repeatedly obnoxious to phytocultural operations.

ELMER GRANT CAMPBELL

PURDUE UNIVERSITY

### QUOTATIONS

#### REWARDS FOR SCIENTIFIC RESEARCH

SHOULD the Canadian Parliament take the action which the Canadian Premier, Mackenzie King, has announced the intention to propose, and award to Dr. F. G. Banting, the discoverer of "insulin," a life annuity of \$7,500, it will be an event of importance both in itself and as an example for other nations. [Parliament has unanimously voted the annuity.] Incidentally, it will give convincing proof that the Canadian lawmakers have an intelligent appreciation of a service to the world such as has been rendered by the Toronto physician and an equally intelligent understanding of the best way to reward that service.

Professional ethics as understood among the English-speaking peoples, and most others except the Germans, will prevent Dr. Banting from exploiting the large commercial possibilities of his remedy, and the fame acquired from his achievement will be confined rather closely to his colleagues and will not pay grocers' bills. It is therefore the wisest of generosity for Canada to give to the son whose honors she shares enough to permit the devotion, without material anxieties, of the rest of his life to the form of research for which he has demonstrated his competence. Even though he never should find another specific for one of humanity's scourges, his work is sure to increase the general stock of medical knowledge.