PROGRESS

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THE SCIENTIFIC NEW ZEALANDER.

VOL. II.—No. 1. MONTHLY.] WELLINGTON, N.Z., NOVEMBER 1, 1906. [PRICE: 6d Per Copy; 6/6 Per Annum posted, or in advance 5/-

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The Scientific New Zealander.

Published Monthly by Baldwin & Rayward, Patent Attorneys, 71 Lambton Quay, Wellington, N.Z.

EDITORIAL COMMENT.

The Anti-Trust Fuel.

Although the world has been slow to adopt spirit engines for commercial use yet there can be no doubt that this method of motive power has great possibilities, and is rapidly coming into use upon the Continent of Europe and in the United States. With regard to this last named country, a step in the right direction has been taken by the passing in the United States of the Denaturised Alcohol Bill by both Houses of Congress, placing that description of alcohol on the free list. Any farmer can now, it is said, make alcohol at from five to eight cents per gallon from the refuse on his farm. A farmer with a large quantity of rotten potatoes, bad apples, half-rotten vegetables and water soaked corn or maize could not previously dispose of this garbage except as food for hogs. Under the new American law it will be more profitable for the farmer to turn his waste produce into alcohol, for he can erect a distillery at a cost of from £10 to £20, and with that plant he can make alcohol enough to yield profit on large portions of crops which formerly went to waste. It seems that at present users of gasoline are having to pay as much as from 18 to 22 cents per gallon, or equal in English money to from about 9d. to 11d. per gallon, and it does not create as much power as alcohol The United States have been late in the day in adopting this form of spirit engines because of the tax (just repealed) amounting to 4s. 5d. per gallon upon all grain alcohol, and, indeed, upon all alcohol made from anything but wood Meanwhile, some of the European countries have been using alcohol for fuel in large quantities and with great success, and it naturally occurs to us that what can be done in this respect on the Continent and in America ought to be possible elsewhere We learn from an interesting article on the subject in a recent issue of *The American Manufacturer* that the passing of the before-mentioned measure is likely to effect in the United States quite a revolution in certain economic conditions Its intense heating power makes alcohol serviceable as a fuel of the highest order, and it would be invaluable as a power generator for motors

Failure of Shafts.

A circular letter of very great interest and importance to marine, and, indeed, to all engineers, was issued recently by Lloyd's Register of British and Foreign Shipping to superintending engineers and others, who might be able, from their experience to express opinions, and offer suggestions on the subject of the failure of shafts. The large number of shafts which break while at work, added to those which are just caught in time to prevent disaster, by close examination and scrutiny, certainly warrant such a letter being issued, and, as no doubt many of our readers have met with experiences which would help to throw light on the subject, and add to the information which the Committee of Lloyd's is desirous of obtaining, in order to lessen the number of shaft failures and reduce the risk of broken shafts, those who have had opportunities of inspecting fractured shafts are invited to give the benefit of their observations for the general good The points stated by the Committee for special observation are.—Ingot steel, scrap iron, and scrap steel, as material for the construction of shafts The first named is, perhaps, considered preferable for shafts up to 15 in. diameter, but for propeller shafts, good iron, well forged, is looked upon by a large number of engineers as preferable to steel The difficulty of obtaining scrap iron perfectly free from steel renders the position one of doubt in respect to the perfect homogeneity of the forging, and it is probable that the difficulty of selection has resulted in many bad shafts due to portions of steel being mixed with scrap iron used for the forging It is pointed out in the circular letter that repairing workshops stock heavy forgings for shafts to be ready for emergencies, and that these may be turned down abnormally if a smaller shaft is wanted than the diameter of the finished forging may have been intended for, the strongest part is thus removed in the outer skin

The Cure of Cancer.

MR JOHN BEARD, lecturer in Comparative Embryology in the University of Edinburgh, is reported to have found a substance that will cure cancer by digesting its cells An important article on the subject by Dr C W Saleeby appeared in the August number of *McClure's Magazine* Authorities are agreed that the disease is not the result of an infection. The cells of a malignant tumour are naturally native to the body which they ultimately destroy. Dr. Beard believes that the parent cancer cell has always been in the body, but not of it. His theory of treatment is based upon what is known to embryologists as the alternation of generations. In the case of the skate and the chick there is found to be an asexual larval stage upon which the embryo proper develops. Dr. Beard has discovered what he calls a "critical period," which marks the beginning of the disappearance of this transitory larval generation that had hitherto been growing. The characteristic tissue of which this structure is composed is designated by the name of "trophoblast." Dr. Beard classifies cancerous tissue as "irresponsible trophoblasts." According to him, all malignant tumours are products of aberrant germ cells, so that a death from cancer is, so to speak, a case of fratricide, since the individual and the tumour which kills him are both derived alike from one parent cell. There are a host of instances in the lower animals, if not also in man, of the development of these aberrant germ cells into tumours which show distinct signs of the attempt to produce a second individual. Of these extraordinary cases Dr. Beard (says his interpreter) seems to have provided an explanation. But far more commonly such an aberrant germ cell does not give rise to any such tumour, but passes on to the asexual stage or generation producing the trophoblastic tissue of which we have already heard. In a word, a cancer results from the attempt of an aberrant germ cell to continue its life cycle, the attempt having ended merely in the indefinite production of larval, asexual, or trophoblastic tissue. "If this theory be correct, the conditions which lead to the destruction, digestion, and complete absorption of the normal trophoblastic tissue that begins to vanish at the 'critical period' should have similar effects upon 'irresponsible trophoblast.' In a word, trypsin should cure cancer by digesting its cells The rest of the pancreatic secretion should destroy and dispose of the products of this digestion."

Dr. Saleeby, on the question of actual cures, says he has personally watched, from the first, the treatment of a case of cancer in an outlying district of London. "The diagnosis was beyond dispute and had been independently confirmed at two hospitals—one of them world-famous. The growth was visible and evidently full of vitality. The surgeons had pronounced the case inoperable, and the patient was evidently sinking. Writing two days less than four weeks after the tentative and partial commencement of treatment by trypsin, I am able to report that, so far as all the indications go (and they are abundant), the tumour has already been killed outright."

We hope to hear that this seemingly marvellous discovery has made rapid progress towards the amelioration of a disease which causes more than one in forty of all deaths.

New Zealand International Exhibition, 1906.

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Particulars of the above, which are to be conducted on novel lines, may be had on application. Address Editor, "Progress," Wellington.