MAXIMIZATION OF PRODUCTIVITY*

As the days go by, more and more techniques appear from studies and experiments designed to increase meat or milk production in dairy farming. In view of this situation, our conversations with Profesor Heberto Alcazar Montenegro revealed a surprising innovation. We discovered that he has developed a therapeutic technique designed to increase productivity along with the productive life-span of breeding specimens, which must surely be one of the most revolutionary steps forward in this area.

Outline History

Profesor Alcazar Montenegro, who lives in the mountainous region of Sierra Potosina, has provided a solution to a range of therapeutic problems through the use of Ribonucleic Acid and Cocarboxylase, as well as increasing production and efficiency of cattle by means of implanting a complete hypophysis, with no reaction of rejection.

Now this article is not fiction, despite what might appear; and in order to prevent misunderstandings, readers are invited to study the scientific testimonials in our keeping at CRIADOR. Any enquiries or comments for Profesor Alcazar will be most welcome.

After this brief outline, we would like to present an article prepared by Profesor Alcazar for publication in CRIADOR. This describes certain experiences using transplanted whole hypophyses.

Introduction

Mainly for economic reasons, beef-producing cattle-breeders need to find the quickest way to increase body-weight of specimens in order to obtain the most profit. In the search for a solution to this commercial problem, cattle-breeders have given their support to the work of researchers who, whilst interested in the scientific aspect in itself, nevertheless offered a variety of ways in which this goal could be achieved.

It is common, then, to find solutions based on the use of certain hormone mechanisms, giving great importance to the use of either natural or synthetic estrogens (estilbestrol), and certain hypophyseal hormones such as somatotrophine. Unfortunately the use of estrogens does indeed normally produce increased body weight; but with less resistance, less potential to adapt, and meat richer in fat than in proteins.

Techniques using homologous growth hormones in young pigs showed negative results in the animals studied. Four out of eleven died in convulsions, with renal and hepatic damage (1). As for increased body weigth, both experimental animals and control animals showed equal progress; although those injected with purified hormone needed less food than the others to produce the same quantify of protein.

Even though the final balance of these experimental procedures was negative, it taught us a useful lesson regarding the imbalance caused by purified somatotrophine; this leaves the rest of the endocrine system without an adequate stimulus. One possible explanation would be that the general imbalance of the organism was caused by an energy deficiency following an increase in protein synthesis as a result of somatotrophine usage. Any hormone treatment should always be made with the greatest respect for the homeostasis of the organism concerned in the experiment.

In another field —the attempt to improve reproductive functions in domestic animals— several methods are common. However, according to some geneticists, when a specimen begins to exhibit reproductive disorders, replacement by another should be considered, waiting to see if recovery is spontaneous. There is at present no treatment to guarantee a cure in this field.

Hypophyseal Transplant

For many years it was mistakenly believed that a hypophysis, transplanted to a site anatomically distinct from its own, suffered a loss of functional capacity through the absence of a direct connection with the hypothalamus. The gland was regarded as a mere reservoir for the hormones produced by the latter. Recent work on neurohormones deriving from the hypophysis, however, has shown that if the hypothalamus does indeed finally send stimuli to the hypophysis, the latter is equipped to receive through the tissular liquids direct

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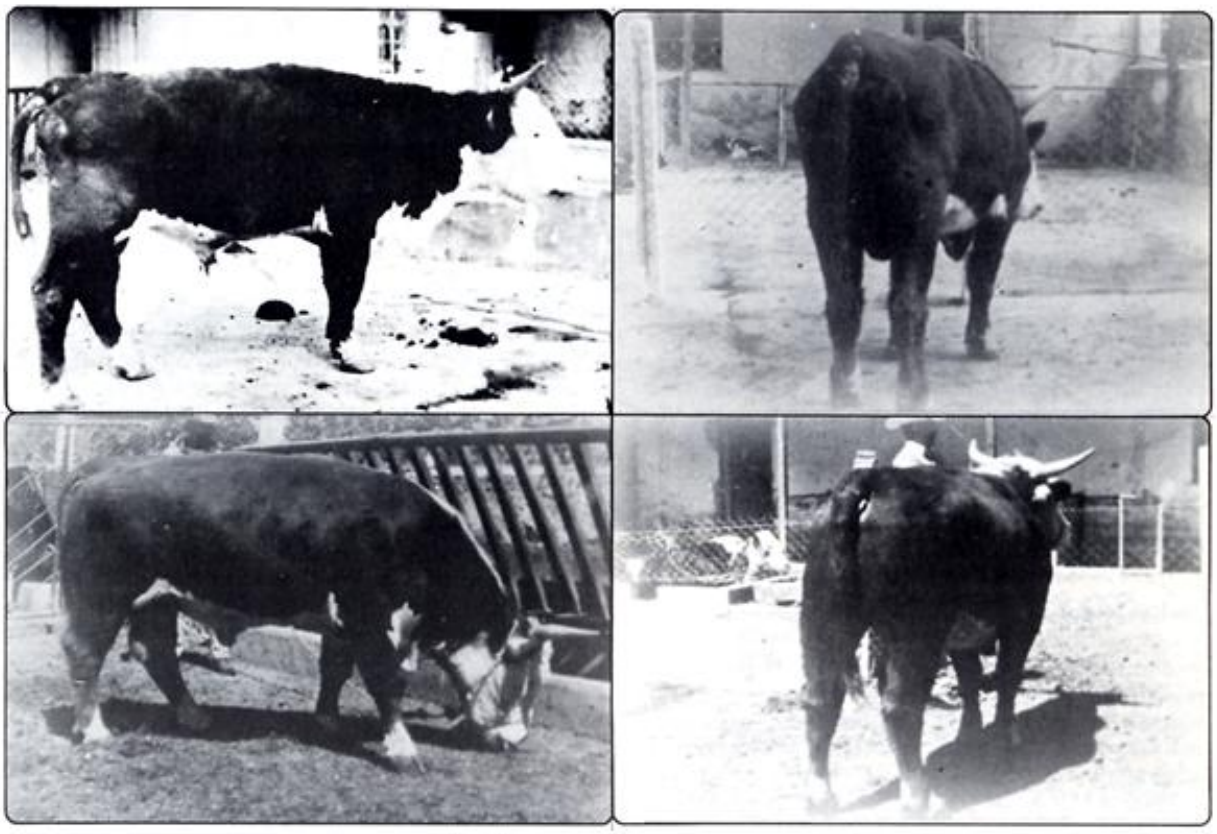
*Translated by Anthony Byrne



The top two photographs show the original condition of a Hereford bull. The botton two, the change following treatment with cocarboxylase and hypophysis transplant.

information on hormone levels; and through a feedback mechanism, produce the required hormones.

As has been observed in hypophysis transplants to the liver, the LFs (liberating factors) do indeed continue to influence the rate at which hypophyseal hormones are released, as well as their synthesis.

A series of biological experiments performed by our team has proved that hypophyses implanted from sucklings into subcutaneous cellular tissue in animals of different species results in an increase of physical growth and at the same time completely restores reproductive capacity. Rejection is prevented by the use of a modified transfer RNA (tRNA H.A.M.)which has already demonstrated its ability to prevent immunological response to alo-and xeno-graftings (2,3).

Method Used

For the performance of this procedure, we need the following: modified transfer Ribonucleic Acid (tRNA H.A.M.) in a 2% solution for injection; stable thiamine pyrophosphate in a 4% solution for injection; suckling calves as hypophysis donors; cows and bulls of any age with impaired reproductive functions as hosts to the calf hypophysis; suckling pigs as hosts to bovine hypophysis.

One or two hours before the implant, an intramuscular dosis of 1 mg/kg of body weight of tRNA H.A.M. was applied. When patient was ready for the implant, donor was slaughtered. Trepanation was performed level with the supra-scilliary arches in a horizontal direction. The encephalic mass was removed and the hypophysis was extirpated at the stalk, taking care to preserve the lobules intact. Simultaneously another surgeon performed an incision in the host animal. A site was prepared in the cellular or muscular tissue of sufficient dimensions to implant the hypophysis with ease. After suturation, an intramuscular dosis of 2 mg/kg of body weight of stable thiamine pyrophosphate solution was applied. The same doses of tRNA H.A.M. and of thiamine pyrophosphate were repeated 48 hours later on three occasions. Sutures were removed on the fifth day.

Results Obtained

Cows were chosen which, upon tactile exploration, had been diagnosed as having tumored ovaries, making reproduction impossible. After failure with hormone treatment and a reasonable lapse in the hope of spontaneous recovery, transplant was performed. Normality was restored, and pregnancy followed artificial insemination.

Bulls diagnosed as unable to reproduce —through lack of libido— or to jump failed to respond to classical therapeutic procedures. After transplant, libido was soon recovered and the ability to jump followed in two months, along with reproductive capacity and a notable improvement in general condition (Figures 1 & 2). Both male and female continued reproductive activities as normal after transplant.

Suckling pigs after transplant exhibited increase in body-weight and up to 30% in measurements compared with those not receiving a transplant.

Horses after transplant recovered their reproductive capacity, whilst castrated animals suprisingly showed a significant recovery of general condition.

None of the animals receiving transplants showed any macroscopic sign of rejection.

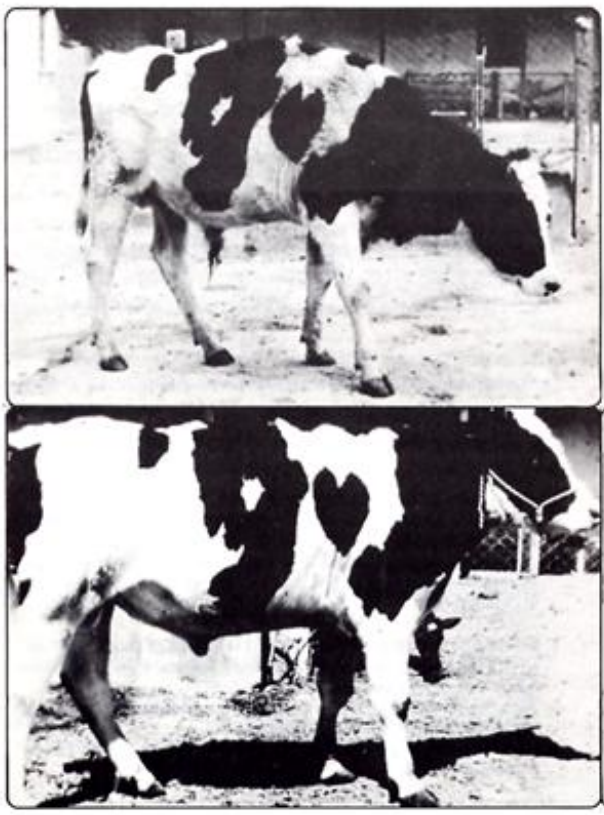
Discussion

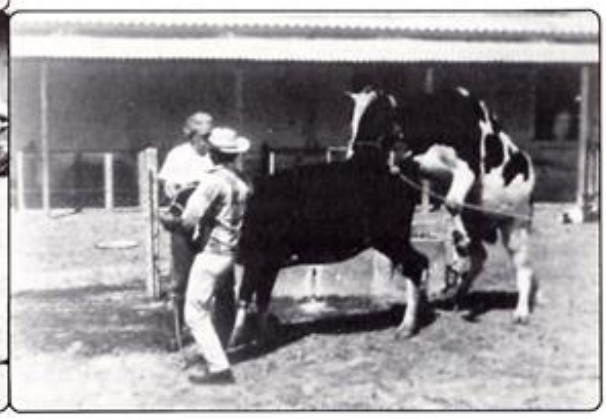
In the light of biological evidence, we are forced to seek some explanation for the results, however provisional.

With regards to the survival of the hypophysis at the site of transplant, extrapolation can be made from the case of autologous skin graft. Plasma circulation occurs, which allows the transplanted skin to continue living until spontaneous vascularization begins (4). It is also known that a hypophyseal gland is able to live for some time in an artificially cultured environment.

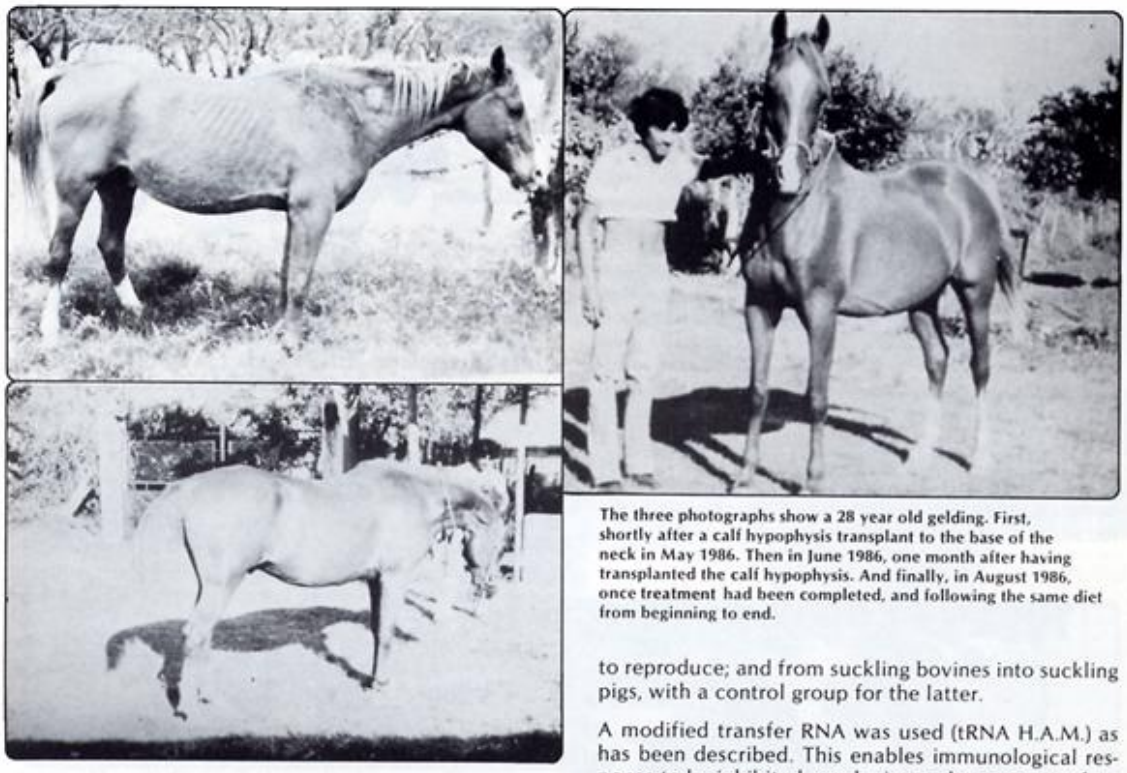
Certain people argue against our work, claiming that the hypophysis has practically no antigenic properties and therefore can be accepted by any host with no problem at all. However, in experimental work on dogs we have observed that the hypophysis of bovines is not accepted (5). Reject mechanism is evident to the eye, with cellular destruction both at the site of the transplant as well as in the surrounding area.

In the case of homologous transplants where rejection is not ostensible, the site where the hypophysis rests becomes fibrous and often calcifies with time. Moreover, these tests do not offer any physiological-type benefit to the animal treated.





In the first photograph, the initial condition of a Hereford bull, next after treatment, and then, following treatment the same bull servicing a cow.



The three photographs show a 28 year old gelding. First, shortly after a calf hypophysis transplant to the base of the neck in May 1986. Then in June 1986, one month after having transplanted the calf hypophysis. And finally, in August 1986, once treatment had been completed, and following the same diet from beginning to end.

The effects of the previously-injected tRNA are not clear. One possible mechanism of these effects is to promote the production of interferon, as occurs with certain viral nucleic acids, leading to a consequent decrease in cellular immunological response (6). Another possible mechanism is the temporary blockage of receptor —and antigen— presenting cells, promoting a phenomenon of tolerance for the transplant instead of an immunological response.

The effects of the hypophysis transplant in the experimental conditions described, avoiding rejection through the use of tRNA H.A.M., are not due to the effects of the hormones found in the implant alone. Neither are they comparable to the injection of hypophyseal extract or of purified hormones. The doses in these systems —forgetting for a moment the immunogenic effect— is arbitrary. In contrast our system utilizes the homeostasis of the receptor organism to produce an equilibrium between the different hormones produced by the hypophysis. This enables the animals concerned to develop correctly, and restores their reproductive capacity.

Summary

Transplants were performed of hypophysis from suckling calves into bulls, cows and horses all unable to reproduce; and from suckling bovines into suckling pigs, with a control group for the latter.

A modified transfer RNA was used (tRNA H.A.M.) as has been described. This enables immunological response to be inhibited, producing a phenomenon of tolerance. Animals no longer able to reproduce, both male and female, recovered their reproductive capacity. Suckling pigs after the implant exhibited significant increases in weight and in size compared with control animals.

Discussion concerns the possible mechanism which prevents rejection of the transplanted hypophysis, and the effects of this on the host animal.

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Note from the Editor

This treatment is probably not economic for animals of little value. It is an excellent means to prolong the productive life of breeding specimens of more value, owing to its exceptional genetic effects.