

THE UNIVERSITY OF CAPE TOWN ARTIFICIAL LIMB

In this issue of the *Journal* we publish a report by Prof. C. E. Lewer Allen on the work done in his Department in designing and making the University of Cape Town Artificial Limb. At the time of publication only one patient has walked on this limb. Within a short time a selected group of patients will put to test the first manufactured prototypes of the limb and we can be confident that the work done by the Department of Orthopaedic Surgery of the University of Cape Town will be proved a success. By giving this work to the world now, rapid improvement of the techniques involved may be made by research teams in other parts of the world.

The struggles and difficulties overcome by this University's Department of Orthopaedic Surgery in this project have been an inspiration to many who have met with the frustrations at present rife in some of our university activities. It would be pertinent, therefore, to glance objectively at this problem.

The proper place in our society for the university and its activities is in the forefront of modern advancement of knowledge. Our scientists and workers in the university are selected from the best in their spheres of work. If they are enabled to devote their time to the advancement by research of the newest and most original developments in their own spheres, the student, placing himself under such masters, will in truth be benefiting in the proper way; the way implied by the very word 'university'. Unfortunately, there is far too little promotion of research in our universities today, and the danger is that the students tend to be fed too freely on the standard text-books.

An examination of this state of affairs brings to light certain rather alarming facts. Lack of finance for university research imprisons excellent brains within cloister walls where they are unable to obtain funds for research. As a result there is a real and human tendency for young scientists to drift away from the university towards industry which offers the materials and equipment they require. This drift may not, on the surface, appear to be a dangerous thing, yet in a subtle way it is. For a very long time industrial firms have employed scientists and research workers. The work done by these people differs subtly from the work they would do if they remained in a university. The scientist in a big fishery project, for instance, would have to focus a great deal of his thought on helping his company to catch fish, or on turning the fish into more money. Many similar examples could readily be found. The research worker in a university, on the other hand, would be devoting his time to the search for truth, wherever that search might lead him. Such basic research is the true and healthy pabulum of advance. Without it our various fields of science must inevitably become arid or sterile. The scientist in industry has become an ever-growing necessity; but without the atmosphere of research for truth's sake his potential must inevitably disappear and scientific sterility supervene. Furthermore, techniques, wisdom and judgment can only be acquired by the young scientist if he remains long enough

for solid grounding in the atmosphere and spirit of basic research before going out into the commercial and industrial world. Unfortunately, here again we see the drift referred to in the conclusions of Professor Allen's article. Salaries paid to scientists in our universities are, of necessity, far too low by comparison with the inducements offered by external enterprises, and gifted young men and women leave their Alma Mater all too early.

What then is the remedy and how can we bring about the renaissance called for by Professor Allen's conclusions? This is surely a problem demanding international attention. It is becoming apparent that those who benefit from the services of scientists and research workers should at least begin to appreciate what is more than a moral duty, what is in fact and truth a debt that they owe to the universities which produce the scientists and the basic research. The results of basic research have often been given to the world in an altruistic spirit, and a good example of this is the University of Cape Town Artificial Limb. But the time has come when the world should appreciate the full value of the spirit in which such knowledge is given, and be prepared to pay generously for it.

Until now, many donors have been satisfied to salve their consciences with the odd sop in the form of a donation towards a scholarship or bursary. This is not enough if we are going to revive the vitality of research in our universities. The domestic story of the University of Cape Town Limb is one of frustrating and humiliating struggle. Materials had to be begged for, and without the voluntary services given by Mr. L. V. Holmgren in his spare time, until seconded in the last year of this work to the Department of Orthopaedic Surgery, these advancements, of immeasurable value to the world, would not have come into being. For two years the essential work on this project had to be done in home workshops, with the occasional voluntary permission to use other workshops. The loss of valuable time in the compilation of a vast number of memoranda and correspondence to obtain assistance was indeed frustrating and must have slowed up this project seriously. Surely, then, we cannot allow Professor Allen's appeal to pass unheard, the appeal for greater freedom to carry out the immensely important basic research which should be the prerogative of our universities.

A second important principle arising from this work merits our attention. There has been an increasing tendency to over-commercialize medical requirements. Are we to stand by and watch these things happen when they appear to be assuming sinister proportions? These remarks apply, among others, to appliances and apparatus required by the disabled. People requiring artificial limbs are but a small minority. Few of them can afford to purchase their limbs, and mostly they are not only unable to do so, but suffer in many ways, usually financially, from the tragedy associated with their amputations. In effect, these limbs have to be purchased out of our taxes or contributions to welfare associations. Public money of this kind should not find

its way into anybody's pocket in the form of excess profit.

For this reason Professor Allen has determined to take every possible step against the enrichment of any organization or person from the patent royalties on this new artificial limb. A plea is made in his article that this altruistic principle

should be observed by others who, in future, may add to the development of this apparatus. The insidious dangers and temptations involved in patenting for gain essential requirements for handicapped persons must be recognized.

### DIE KUNSBEEN VAN DIE UNIVERSITEIT VAN KAAPSTAD

As gevolg van volgehoue en geïnspireerde navorsingswerk wat in die aangesig van baie moeilike omstandighede gedoen is in die Departement Ortopedie van die Mediese Skool van die Universiteit van Kaapstad, is Suid-Afrika vandag in staat om 'n revolusionêre nuwe kunsbeen aan die wêreld te gee. Elders in hierdie uitgawe plaas ons 'n artikel deur prof. C. E. Lewer Allen waarin die beginsels waarop hierdie been gebou is op so 'n manier uiteengesit word dat werkers dwarsoor die wêreld met werk van hierdie aard sal kan voortgaan.

Terwyl ons nou verwys na hierdie artikel, wat werklik 'n weerspieëling is van navorsingswerk op die hoogste vlak, is dit ter sake om aan te toon dat werk van vergelykbare gehalte plaasgevind het en nog plaasvind aan al ons mediese skole. Ons dink byvoorbeeld aan werk in verband met oop hart-chirurgie, die kunsnier, die kompressiepak by bevallings, spesiale snykundige prosedures, en navorsingswerk oor voeding, hartsiektes en metaboliese toestande, ens.

In ons land gaan al hierdie soort navorsingswerk egter mank aan besonder ernstige knellings. Die werk wat in verband met die kunsbeen gedoen is, het weer opnuut ons aandag by die knellings bepaal. By die maak van die been in die Departement Ortopedie van die Universiteit van Kaapstad was daar nie net 'n stryd om werkers te vind en vry te stel om die nodige navorsing te doen nie—en dit grotendeels in hulle vrye tyd—maar geld moes soms op byna onwaardige maniere gesoek word om met die werk te kon voortgaan. Dit is dus miskien goed om hier 'n kort perspektiewe lig op hierdie aspekte van mediese navorsing in ons land te werp.

In die eerste plaas moet ons aanneem dat alle groot navorsingsprojekte vroeër of later voor finansiële moeilikhede

te staan kom. Daar is weliswaar stigtings en ondernemings soos byvoorbeeld die W.N.N.R. wat geld ruimskoots beskikbaar stel vir navorsingsdoeleindes. Daarvoor is ons dankbaar. Maar, ons sal nog baie moet leer van so 'n land soos Amerika, waar baie groot somme geld uit private bronne en allerlei stigtings beskikbaar is op 'n skaal wat ongeëwenaard is in die Westerse wêreld. Ook sal dit goed wees om die vraag te stel (al stel ons ons bloot aan 'n aantying van naïwiteit) of dit dan nie moontlik is om op die een of ander tyd minder geld aan die navorsing van kernwapens vir militêre doeleindes te bestee en meer aan suiwer akademiese navorsing nie?

Omdat daar nie genoeg geld beskikbaar is aan ons universiteite vir volgehoue grootskaalse navorsing nie, en omdat ons universiteite hul beste navorsingskrigte nie genoeg betaal nie (in vergelyking met private kommersiële ondernemings) òf ook omdat die navorsers wat daar wel aan ons universiteite is te veel onderwyswerk van 'n roetinegehalte moet doen, verloor die universiteite al meer hul beste akademië. Hierdie toestand van sake moet herstel word voordat dit tot volslae akademiese steriliteit lei.

In sy artikel oor die kunsbeen dui professor Allen aan dat moeite gedoen is om die been dwarsoor die wêreld te patenteer. Dit was nodig omdat daar ongelukkig 'n neiging bestaan om mediese behoeftes van ongeskikte persone te oor-kommersialiseer. Professor Allen voel dat hierdie toestand van sake prinsipiël verkeerd is, en ons wil graag langs hierdie weg 'n beroep doen op alle toekomstige vervaardigers van die been om ook in hierdie geval die ou tradisies van die mediese professie te handhaaf, naamlik om bo alles voorrang te gee aan menslike oorwegings en die beginsels van diens.