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U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
USAID/THAILAND

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37 Petchburi Soi 15
Bangkok 10400 Thailand

September 26, 1991

Mr. David A. Boone, C.P
Technical Director
Prosthetic Research Foundation
720 Broadway
Seattle, WA 98122

Dear Mr. Boone:

Grant No. 493-0014-G-00-1178-00

Pursuant to the authority contained in the Foreign Assistance Act of 1961, as amended, the Agency for International Development (hereinafter referred to as "A.I.D" or "Grantor") grants to the Prosthetics Research Foundation (hereinafter referred to as "Grantee" or "PRF"), the sum of $275,000 for extension of PRF Prosthetic Services in Vietnam, as described in the Schedule of this grant and the Attachment 2, entitled Concept Paper for USAID War Victims Fund.

This Grant is effective and obligation is made as of September 30, 1991 and shall apply to commitments made by the Grantee in furtherance of program objectives during the period beginning with the effective date and ending September 29, 1992.

This Grant Agreement is made to the Grantee on condition that the funds will be administered in accordance with the terms and conditions as set forth in Attachment No. 1 entitled Schedule, Attachment No. 2 entitled Concept Paper for USAID War Victims Fund and Attachment No. 3 entitled Standard Provisions and Optional Standard Provisions. In the event that there is a discrepancy or disagreement between the Standard Provisions and the Concept Paper for USAID War Victims Fund or Grant Agreement Cover Letter, the Concept Paper for USAID War Victims Fund and Grant Agreement Cover Letter shall prevail.

BEST AVAILABLE DOCUMENT

Please sign the original and five copies of this letter to acknowledge your acceptance of the Grant Agreement and return the original and four copies to this office. Keep one copy for your records.

Sincerely,

Neil C. Edin
Grant Officer

Acknowledged:

Prosthetics Research Foundation

BY : Ernest M. Burgess

TITLE: President PRF.

DATE: Sept. 26th 1991

Attachments:
1. Schedule
2. Concept Paper for USAID War Victims Fund
3. Standard Provisions and Optional Standard Provisions
4. Reporting Requirements

Fiscal Data

PIO/T No.: 499-0014-3-10067

Project No.: 499-0014

Appropriation: 72-110/11037

Budget Plan Code: PESO-91-27730-1612

Total Estimated Amount: $275,000

Total Obligated Amount: $275,000

IRS Employer Identification Number: 91-1453216

Funding Source: USAID/Bangkok

Funds Available: John Diai, Controller date 9/26/91

Best Available Copy

Attachment 1

Schedule

A. Purpose of Grant Agreement

The purpose of this Grant is to enlarge the clinical commitment of the Prosthetic Center in Vietnam to double the output by 1992 as more fully described in Attachment 2.

B. Period of Grant Agreement

This Grant Agreement effective date is September 30, 1991. The estimated completion date is September 29, 1992.

C. Grant Amount and Method of Payment

1. A.I.D. hereby obligates the amount of $275,000 for the purpose of this Grant.

2. Payment shall be made to the Grantee in accordance with the procedures set forth in Attachment 3 - Optional Standard Provision No. 2 entitled "Payment - Advance".

D. Budget Plan

The following budget is sumarized as follows and is provided as part of Attachment 1. Revisions to the budget line item estimates may be made in accordance with the Standard Provision entitled "Revision of Grant Budget". Provided the total obligated amount shown in Paragraph C.1. above is not exceeded. Refer to Revision of Grant Budget (SP # 4) for revision of amounts below.

Budget

1.	Supplies		$237,725
	1000 Modular Prostheses	$190,000	
	1000 Prosthetic Cosmetic Covers	22,000	
	Plastic Raw Materials For Sockets	18,000	
	1000 Tropical Weight Stump Socks	4,400	
	1200 Rolls Plaster Bandage	2,700	
	Nyloplex and Copper Rivets	500	
	Dacron Webbing	125	
2.	Vietnam Facility Operating Costs and Staff		7,175
3.	Equipment (AFMA Limb Digitizer)		4,500
4.	Shipping/Insurance, Seattle to Hanoi		5,000
5.	Travel (1 person X 2 trips SEA/HANOI/SEA		2,600
6.	Vehicle for patient Transport		18,000
	Total		$275,000

E. Standard Provisions:

This Grant Agreement includes, as Attachment No. 3. the Mandatory Standard Provisions numbered 1 through 13 and the Optional Standard Provisions that are shown on the index as applying to this Grant Agreement.

F. Audit

In the event that the independent audit reports on the Grantee or any sub-grantee or contractor, as provided for, and/or program reports, do not satisfy AID's requirements as determined by the A.I.D. Inspector General (Audit), and the A.I.D. Inspector General choses to make an on-site fiscal or program audit, the Grantee agrees to USAID taking reasonable steps to coordinate the scheduling and conduct of such audit with the Grantee in advance, and to providing unrestricted access to its books and records, as further described in Mandatory Standard Provision No. 2.

G. Authorized Geographical Code

Vehicle purchase, supplies and employment of employees must follow this Optional Standard Provision No. 6, page 4C-25(b)(1)(1) except that procurement is authorized when necessary for commodities or supplies in Vietnam.

I. Pre-Grant Expenses

Expenses for consultation, travel, per diem and related expenses up to $10,000 are hereby authorized as pre-grant expenses. A breakdown from grantee must be furnished to USAID Grant Officer before billing for such.

J. Reporting

PRF will provide reports as follow:

Two copies each of detailed progress reports in English to Mr. Donald Reese, Office of the Environment & Participatory Initiatives (O/EPI); USAID Box 47, APO AP96546-7200; Mr. Allen Randlov, S&T/H-AID/W; Will Elliott, APRE/DR/PD; and AID/W Vietnam desk officer, Agency for International Development, Washington, D.C. 20523 from the date of the Grant and such reports will become due within 30 days following the 3rd, 6th, 9th and 12th month of the project. Reports will describe the progress and problems related to those project activities set forth in the project proposal, following the recommended reporting format (Attachment 4). The reporting of gender-segregated data on beneficiaries of project activities is also required.

K. Special Provisions

1. Any publications funded under this grant shall acknowledge USAID support otherwise follow Optional Standard Provision #11 on publications. If other arrangements are needed, please contact the USAID Grant Officer.

2. Local Vietnam currency may be exchanged for the highest legal rate available. All currency exchanges require the rate of exchange to be noted, date of exchange and where exchanged.

3. Evacuation insurance for non-Vietnamese employees may be charged to grant when employees are in Vietnam.

4. No billings can be made until the USAID Grant Officer has reviewed audit reports now in progress for PRF and acknowledged receipt.

5. Vehicle title will be vested in grantee but at end of grant USAID will review who final title should rest with. Grantee does not need waiver to purchase vehicle. Each vehicle is hereby authorized. Grantee is responsible for all necessary clearance.

6. An audit shall be performed of PRF during the first 9 months of award to meet USAID Handbook 13 requirements. Currently "notwithstanding" language has been approved.

Attachment 2

Concept Paper For U.S. A.I.D. War Victims Fund

Extension of PRF Prosthetics Services in Vietnam

E.M. Burgess M.D., President, PRF
D.A. Boone C.P., Technical Director, PRF

May 20, 1991

Prosthetics Research Foundation
720 Broadway
Seattle, Washington 98122
206 - 325 - 3607 (fax)
206 - 328 - 3116

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Introduction

Prosthetics Research Foundation (PRF) is a non-profit (IRS 501(a) described in section 501(c)(3) of IRS code) U S. NGO that directly provides prostheses to amputees in the developing world. It has its origin in the Prosthetic Pesearch Study (PRS), a non-profit Research Institute located in Seattle, Washington. Since it's inception in 1964 it has conducted basic and clinical research relative to wound healing, reconstructive limb surgery including amputations, rehabilitation from crippling deformities and improved mobility aids. PRS' primary source of funding is federal government research funds, Merit Review approved, chiefly from the Department of Veterans Affairs Rehabilitation Research and Development Service. Its priority commitment is not only to research but also the technology transfer of this research to clinical use in the physically disabled community specifically disabled American Veterans.

Privately funded PRF has used techniques developed by PRS to help amputees from Kenya, Brazil, El Salvador, Philippines, Afghanistan, England, Latvia and Uzbekistan as well as other countries. Starting in 1989, PRF has mounted its largest project by successfully establishing a much needed prosthetics clinic in Vietnam. Construction of a clinic on Giai Phong Street in Hanoi is complete and the facility is fully functional and equipped. Local staff have already been trained in advanced prosthetics and are responsible for day to day operations. This clinic is especially notable for its use of Automated Fabrication of Mobility Aids (AFMA) technology developed in the U.S.. This paper discusses the PRF project in Vietnam and suggests how U.S. A.I.D. funds for war victims can be used to provide an additional 1000 prostheses to Vietnamese amputees during 1992.

Background

Prosthetics Research Foundation

PRF is a highly capable organization made up of surgeons, prosthetists and engineers who are regarded as international experts in the field of prosthetics. PRF draws on their volunteer expertise which has created Immediate Post-Operative Prosthetics (IPOP), Modular Prosthetics, the Seattle™ Limb and the AFMA technology among other developments. For example, The Seattle™ Limb is a world renowned standard for lower limb prostheses because of its natural function and low-cost. Over 60,000 amputees on six continents are wearing this design. The same components and functional design are used to produce the prostheses provided by PRF in Vietnam. Along with specific design changes for the Vietnam environment, PRF research has made it possible and practical to effectively produce world class prostheses in a third world setting.

PRF has been active in Vietnam since January 1989. Commerce and Treasury Department licences have been obtained for all equipment, supplies and support funds sent to Vietnam by PRF. These were obtained under humanitarian aid provisions administered by each department.

Our involvement has has been in the form of two tracks: Research and Service. Following is a brief time-line of PRF activities in this project.

January - November 1989 Initial contact with Vietnam Ministry of Labor, Invalids and Social Affairs (MLISA). Amputee research subjects selected at BA VI Rehabilitation Center. Experimental prostheses made by PRF. Review of subjects leads to adjustments in socket design and development of new components such as the All-Terrain Foot (ATF).
December 1989 Initial training of Vietnamese staff at PRF facility in Seattle.

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January - May 1990 Long-term follow up of research subjects from previous year. Construction of PRF clinic on Giai Phong Street, Hanoi.
June 1990 Shipment and installation of equipment for clinic and initial supply of modular components. Begin prosthesis production on training basis.
September 1990 Advanced on-site training of clinic staff.
1991 Dedication of clinic and formal opening. Resupply with modular limb components. Ramping up of production to May average of 113 prostheses per month. Goal of 120 per month by October 1991.

Initially, several visits were made to Vietnam to fit experimental prostheses to Vietnamese amputees. With the interest and support of the Vietnam Ministry of Labor, Invalids and Social Affairs these prostheses were examined and the amputees questioned over a period of several months, resulting in a series of prosthetic design considerations to specifically address the environment in Vietnam.

This set of well-defined design criteria comprise what we feel is the best prosthesis to help the war victims of Vietnam. It was evident from this research that use of the Automated Fabrication of Mobility Aids (AFMA) technique being developed in the United States was uniquely suited to the problems encountered in Vietnam.

The Use of AFMA In The Developing World

The president of PRF, Dr. Ernest Burgess, and members of his research staff have had extensive experience in the provision of mobility aids and in particular prostheses and orthoses under third world circumstances. These experiences include teaching, demonstration surgery, and mobility aid fabrication techniques in Eastern Europe, Africa, Central and South America, parts of Asia including Southeast Asia and the South Pacific. It has been traditionally held by us and others working in the non-industrialized world that modern techniques such as AFMA are for obvious reasons not applicable to the great numbers of physically disabled persons in the heavily populated usually impoverished underdeveloped countries. Current services to provide mobility aids to the literally millions of third world people needing them has over the years proven severely inadequate. The use of local materials is commendable as is the use of local labor educated to hand fabricate limbs, however there is little hope for these labor intensive, functionally crude limb substitutes to help more than but a tiny number of the needy. Through simplified production techniques, the AFMA prosthetic clinic can maintain a very high and consistent quality. The Hanoi clinic is also inexpensive to support because of the vastly simplified supply logistics, training and oversight required.

The AFMA techniques, while a radical departure from existing third world services, offers an even more remarkable opportunity to improve prosthetic substitution in the third world than it does in the industrialized world where quite satisfactory limbs even though largely hand crafted are available. We at the Prosthetics Research Foundation decided to establish a demonstration center to test this thesis. We deliberately chose one of the most difficult sites in the world; Vietnam. The country is one of the two or three poorest in the world, it has been devastated by almost continuous war for the past thirty five years (war with France, China, the United States and its neighbors). We have no formal diplomatic or other relations with the country, i.e. it is still considered an enemy state. Communications as well as all types of physical and diplomatic problems exist to thwart the establishing of such a center in Vietnam.

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With the cooperation of the United Nations, the tacit and most helpful support of the United States Department of State, Department of Commerce, and Special Emissary, General Vessey, plans were developed to place an AFMA prosthetics Center in Hanoi.

The result has been remarkable. The Vietnamese have rapidly enlarged the service from its beginning at which time we assisted with the first twenty five amputees. Output of high quality environmentally suitable limbs has progressively increased and is now at the level of one hundred and twenty five per month from this single Center. The Center personnel consists of Mr. Loi the prosthetic engineer and technical director, Dr. Loc an orthopedic surgeon, and five technicians trained in Vietnam. The limbs are "light years" improved over what had been previously made available in very limited number to the 115,000 amputees in that country. (It is estimated that less than fifteen percent of that number including men, women and children have any type of suitable replacement device.)

The AFMA limbs themselves are very durable, modular, and are quickly assembled, aligned and cosmetized. The terminal devise can be easily converted to work in the rice fields and for use in farming and on rough and irregular terrain. They are durable, comfortable, and available at low cost.

At the Commencement Opening of the Center in February, 1991 people attended from adjacent Southeast Asian countries, i.e. Laos and Thailand as did representation of our State Department, General Vessey's Commission, the International Red Cross and others. Since the opening date Afghanistan and others have sent delegations to study the methods. The staff reports that recently every foreign delegation in Hanoi has been out to inspect and study the facilities. At this time the Center is also providing AFMA sockets to the International Red Cross prosthetic facility in Ho Chi Minh City.

Also, entirely new components were designed specifically for Vietnam. Most notable are an all-terrain foot and a multiple heel-height ankle structure. The All-Terrain Foot (ATF) is the first mass produced foot specifically designed to last in the harshest environment, barefoot on dirt trails and submerged in the mud of rice fields. The foot is inexpensive, costing only $7 to manufacture and it is impervious to the molds and fungi that comprise various forms of "jungle rot". Preliminary reports show extremely high acceptance of this waterproof design and it is being provided for any amputee that needs all-terrain mobility including the rice paddy worker. An adjustable heel height ankle is being used to accommodate the wide range of heel alignments required. This varies from 3/4 inch heel rise for wearing dress shoes, down to 0 inch heel height for barefoot activities and traditional sandal wearers.

PRF Service In Vietnam

Hanoi Facility & Staff

The PRF facility in Hanoi contains 4500 square feet of newly built and remodeled space on Giai Phong Street across from the Hanoi Polytechnic University, one of the busiest routes in Hanoi. It has pressurized water service and western standard dual voltage electrical service including back-up generator and an Uninterruptible Power Supply (UPS) for electronic equipment. It is fully air-conditioned and humidity controlled. High quality American power and hand tools are used throughout the laboratory space.

The Hanoi clinic is entirely staffed by Vietnamese professionals. 1 Excellent European trained prosthetist and two locally trained in prosthetics technicians are responsible for prosthetics fabrication and fitting and physical therapy. They form the core of the clinic staff along with additional physicians and physical therapy staff.

The prosthetic technology used means that we need very few technical staff to achieve such large scale production of high quality prostheses.

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Prosthesis Production
Over 400 Vietnamese amputees have received state of the art prostheses in the first year of operation. This includes periods of construction and training. Current (5/15/91) production at the PRF Hanoi clinic stands at a steady average of 113 per month since the clinic became fully operational at the end of February. Since March a prosthetic team including Mr. Loi and two technicians have travelled to outlying agrarian areas and fitted in a short period of time as many as 66 amputees in one rural village some fifteen or twenty miles outside Hanoi. The measurements were taken, the limbs were fabricated at the Hanoi Center and then returned to fit the recipients. A second village has also been serviced. In the meantime the steady production of suitable state of the art lower limb prostheses takes place six days a week in the Hanoi Center itself.
See attached Figure.

Patient Population & Service Area
PRF is operating its Hanoi prosthetics clinic with an exemption from the standard Vietnamese government voucher system that could be used to discriminate between patients. Our only requirement for an amputee to receive a prosthesis is to to be a limb amputee and to be able to spend a minimum of 4 hours total at the clinic. More time for physical therapy is recommended for new amputees.

95% of all lower limb amputees who are evaluated at the PRF clinic have long term success with their prosthesis. 5% are not considered functional users of their prosthesis due to poor amputations, and other confounding factors.

The PRF clinic is filling the majority of prosthetics needs for three provinces including the metropolitan area of the capital, Hanoi. The provinces are Ha Bac to the north, Ha Noi, and Ha Son Binh to the south. Currently the patients seen at the clinic are roughly distributed between these three provinces as follows: Ha Bac 45%, Ha Noi 25%, Ha Son Binh 30%. Amputees from outlying districts are transported to the clinic or visited in the home using a MLISA vehicle. An optional budget request is made for a vehicle to be used exclusively for this purpose.

Accountability
PRF staff in Hanoi keep precise records of each individual seen at the clinic. This includes Patient Name, Address, Brief Medical History and a Summary of services provided.

Inventory of supplies is maintained down to the last screw and rivet and is reported bimonthly to PRF Seattle by FAX.. The AFMA technology greatly simplifies supply logistics and accountability due to the fact the each prosthesis made at the Hanoi clinic is comprised of only 5 off-the-shelf parts including plastic for custom molding of the prosthetic socket.

On-site verification by PRF clinical/technical staff occurs at least every 4 months. Including random reviews of patients seen in the previous period.

Proposed Plan

We propose to enlarge the clinical commitment of the Prosthetic Center in Hanoi Vietnam to double the output by 1992.. The Center can also serve as a teaching facility for the proposed Ho Chi Minh area and elsewhere in South East Asia. We request funding to provide the components for an additional thousand lower limb prostheses to be designed and fabricated during the calendar year 1992.

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To date every expense involved in this project including the training of the personnel, the complete physical renovation of the building, the purchase and setting up of the Clinic-Center and the pay of all involved personnel in Hanoi has come out of non-government funds provided by the Prosthetics Research Foundation, the charitable trust operating in conjunction with the Prosthetics Research Study Institute. The limbs are modular and are assembled, aligned, and properly fit by the Vietnamese after they have designed and fabricated the socket with the automated system. Production has been uninterrupted from the day the Center opened. The attached figure indicates the rate of productivity underway.

The Prosthetic Research Foundation underwriting this project has no paid administrative overhead. No one has received a salary for services. Even the transportation costs from the United States to and from Vietnam has been born privately by those involved in bringing this project to its present state of development. The cost of components is remarkably low, approximately $190 to $225 per unit and this price will be reduced as volume increases. With practically no administrative overhead all contributions to the Foundation go directly into equipment, components, salary, and maintenance of the Center. With the additional requested funding for the year 1992 the Center can not only increase its volume but can provide a base for teaching which will reduce training and education costs.

The Prosthetics Research Study is informally affiliated with the University of Washington Schools of Medicine, Engineering, Rehabilitation Medicine and Bioengineering. This relationship is related primarily to interchange of research information and not to services. Our research continues ongoing.

Records meticulously and accurately kept by the Vietnamese themselves are proving valuable as clinical research input for modifications, generally minor, of limb design as it relates to the environmental needs. Since the limbs are primarily composite plastics they are not affected by heat, by moisture, insects, etc. This contrasts to indigenous materials such as wood, leather, and metals which rust and corrode. Aluminum in an exception to the latter.

In summary the Prosthetics Research Foundation respectfully requests funding for the calendar or fiscal year of 1992 to provide approximately 1,000 additional lower limb prostheses for Vietnamese people, men, women, and children regardless of the source of the amputation, politics, creed or color. Optionally, we would also like to request $18,000 for an ambulance vehicle for patient transport from the outlying districts of our service area. This additional financial support will allow the Foundation to not only continue its own program in Vietnam but also to insure its financial stability and increasing productivity.

Budget

A preliminary descriptive budget is attached for the entire project. Note that no funds are required for PRF U.S. staff salaries or overhead. These expenses are covered by previously committed funds. Minimal travel funds are requested only for delivery and on-site verification by PRF as required by the additional prostheses proposed.

Prosthetics Research Foundation
Preliminary Budget For Proposed Expansion of Services In Vietnam
To Include Provision of 1000 Prostheses In FY1992

	Item	Cost US$
Supplies	1000 Modular Prostheses	$190,000
	1000 Prosthetic Cosmetic Covers	$22,000
	Plastic Raw Materials For Sockets	$18,000
	1000 Tropical Weight Stump Socks	$4,400
	1200 Rolls Plaster Bandage	$2,700
	Nyloplex and Copper Rivets	$500
	Dacron Webbing	$125
Vietnam Facility Operating Costs And Staff (1 Yr)		~~$8,000~~ 7,175
Equipment	AFMA Limb Digitizer	$4,500
Shipping/ Insurance	Seattle To Hanoi	$5,000
Travel	1 Person X 2 Trips SEA-HAN-SEA	$2,600
	Total Request	~~$257,825~~ 257,800
Vehicle For Patient Transport (Optional Request)		$18,000
	Optional Total	~~$275,825~~ $275,000

BỘ LAO ĐỘNG - THƯƠNG BINH
VÀ XÃ HỘI
NƯỚC CỘNG HÒA XÃ HỘI CHỦ NGHĨA
VIỆT NAM

Hanoi, 9 April 1991

To: Dr. Ernest M. Burgess
President
Prosthetics Research Foundation

Dear Dr. Burgess,

I honestly thank you for your kind letter dated 5 March 1991. I also want to thank you all for your generous assistance to the Center in Viet Nam. Your assistance has brought its effective results to the disabled people in Viet Nam.

I strongly believe that with your good intention and concern PRF will continue developing its support for the benefit of the disabled in Viet Nam.

Please, send my regards and best wishes to your family and all I know at PRF.

Sincerely,

Tran Dinh Hoan
Minister of Labor-Invalids
and Social Affairs.

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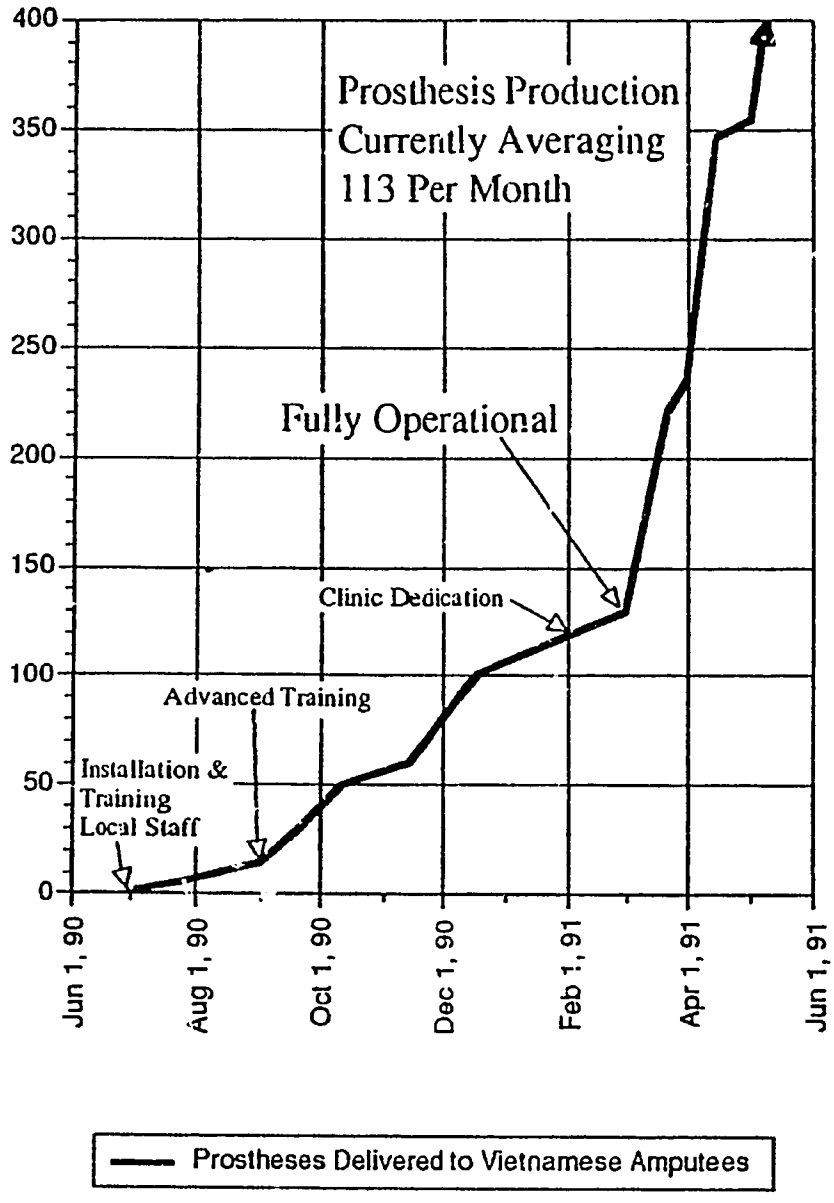
Prosthetics Research Foundation
Hanoi, Vietnam Clinic
Prosthesis Production



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New limbs for Vietnam amputees

vided by the Prosthetic Research Center, billed as "a clinic of friendship and healing" by Dr. Ernest Burgess, the American orthopedic surgeon who is most responsible for its existence.

It is also a clinic of reconciliation. Two American veterans of the Vietnam War, one an amputee, helped bring the clinic to Vietnam. The U.S. government, which officially still considers Vietnam to be an enemy, blessed the project. A delegation from the State Department attended the clinic's recent dedication, their presence a small sign of the slowly warming relations between two countries.

Light new legs

The clinic uses a new limb technique, developed in the United States, that its creator says will revolutionize the treatment of amputees in developing countries.

The new legs are lighter, stronger, more rugged and more flexible than the rigid wooden limbs worn by amputees in Vietnam and almost everywhere else.

"The limbs they're putting out in Hanoi are the state-of-the-art limbs in the world," said David Boone, a prosthetist who helped set up the Hanoi clinic.

Burgess put together the limb system after the Vietnam War. The system is built around the "Seattle Foot," so named because it was pioneered in Seattle at the Prosthetics Research Foundation, which Burgess founded and which oversees the Hanoi center.

The lifelike artificial foot is springy, enabling amputees to run, jump or walk with no limp. Some of Burgess' American patients run marathons.

"I was looking for an opportunity to try these revolutionary techniques in a Third World country," Burgess said.

Fertile proving ground

He found his proving ground in Vietnam. Years of war and disease have left at least 110,000 Vietnamese amputees. Of those, 60,000 were crippled by the Vietnam War or by leftover debris such as unexploded land mines, booby traps or artillery shells.

Len Nicholls, a patient of Burgess' whose lower leg was blown off in a helicopter gunship in Vietnam, had returned to the country in 1987 as a tourist. He was amazed by what he saw.

"Everywhere I went ... I saw amputees," said Nicholls, a charter pilot who is partial to cowboy boots and disco dancing.

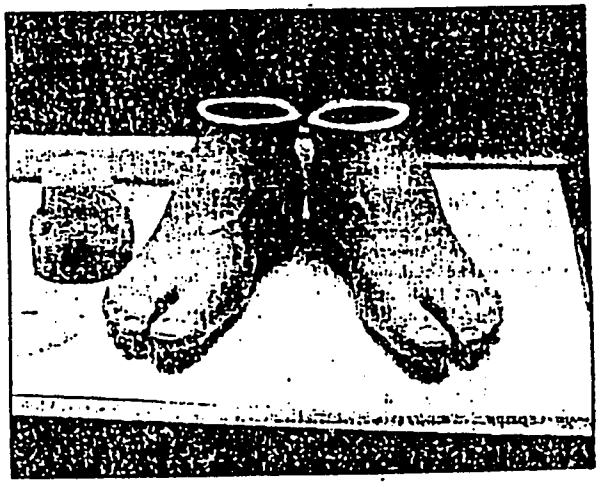
"It's a given that when we (American amputees) get out of the hospital, we're going to go down to a prosthetist and we're going to get a first-rate leg," he said. "Some of these people have been waiting eight to 10 years to see a prosthetist."

Nicholls told Burgess what he had seen. Out of their conversation came plans for the Prosthetic Research Center in Hanoi. Nicholls and retired Marine Lt. Col. Robert Dalton, who had served three years in Vietnam, went to work for Burgess' foundation and laid the groundwork for the clinic.

The limb center is a "milestone along our path of reconciliation following the war that once divided us," said Maria Hubtala, a State Department official who attended the clinic's dedication last year.

PHOTOS BY DOUG MCCLELLA

Le Hong Trai is fitted for an artificial leg to replace one he lost to an artillery shell in 1968.



"Seattle Feet," pioneered in Seattle, Wash., at Prosthetics Research Foundation, springy foot enables amputees to move without limping.

The center hardly looks revolutionary. But it's light years ahead of a place like Ba Vi Hospital, which makes many of the traditional limbs worn by Vietnamese amputees.

About 40 miles from Hanoi, Ba Vi, built by East Germans, is one of three prosthetics centers for northern Vietnam. Not even 20 years old, it is disintegrating from decay and disuse.

A workroom is a mess of leg forms, wood chips, dried glue and cobwebs. Workers carve legs out of wood and aluminum, as their predecessors have done for decades. In Vietnam's climate, humidity, heat and sweat can undo their craftsmanship in months. Amputees wait three to six months for a limb.

At the Prosthetic Research Center, limbs take hours, not months.

The American system is simple and portable. Much of the technology resides in a computer program called the "Seattle Shapemaker," which designs a custom socket after it measures a plaster cast of the amputee's stump.

Once the socket is made, technicians assemble the rest of the leg from off-the-shelf parts, such as a flexible plastic shank, plastic joints, stainless steel bolts and a Seattle Foot.

The original American design has been modified for the Vietnamese climate. Sockets have air spaces to allow circulation beneath the stumps. The knee joint is cut so that amputees can pedal a bicycle, an essential requirement in Hanoi.

The foundation has even designed a special "foot" for rice farmers. Regular-shaped feet get stuck in the mud at the bottom of a rice paddy, so researchers developed something that looks like an oversized pogo stick bottom.

A new life

Patients pay nothing for their new limbs, but get a new life in return.

The office worker, Dhong Thi Van, showed how she jumped for joy when she first used her new foot. She was the clinic's first patient when it opened last July.

"I can do everything like a common person," said Van, pretty a lively at 39. Her leg was mangled age 16 when an ox cart toppled l from her bicycle into the path o trolley.

Ping-Pong champ Thuan Lu wounded in 1948 while fighting t French, is raffish with gleami gold teeth and a beret. Luan, said his new leg should add years to his life.

With his old leg, he said, could play only three or four sets Ping-Pong before tiring and feeli pain.

"Now I can play six sets w the normal people. I am not tire

Burgess hopes an internatio aid organization will finance si lar clinics around the worki. I dream got a boost April 25, wl the Bush administration said would provide $1 million to pay artificial limbs for Vietnamese s diers and civilians injured duri the war. It is the first U.S. gove ment aid to Vietnam since the v ended in 1975.

Burgess will apply for some the funds to expand the Ha clinic. But he will leave it to ot organizations to create new clir using the Hanoi system.

There is no lack of need. Ea quakes in Armenia and Mex City left thousands of amputa Wars have left tens of thousa more. The toll from the Pers Gulf war is yet to be tallied.

But the Vietnamese have no terest in war now. Le Hong T the veteran, was more interestec what he can carry with his new

"I can walk with a heavier lo he said.

When he left the clinic, he strapped the new leg and put old one back on. He would hav return for more adjustments, cause his stump was a difficult to fit.

So Trai set off on his bic down the boulevard among clum of bicyclists, Honda motor scoote and rusty Russian trucks, his ne American leg balanced carefully the handlebars.

San Francisco Examiner
NATIONAL EDITION
MAY 12, 1991
Sunday
DOLLAR & 25 CENTS

New limbs for Viet amputees

U.S. surgeon leads 'friendship clinic'

By Doug McClellan
SPECIAL TO THE EXAMINER

HANOI, Vietnam — Le Hong Trai limped into the modest clinic and removed his heavy wooden leg. A clinic worker took a plastic cast of the stump of his left leg, which he lost to an artillery shell while fighting the South Vietnamese and Americans in 1968.

Hours later, Trai walked out of the clinic a few pounds lighter and a lot stronger. He wore a new leg, designed by computer and shaped from plastic, that was equal to the best artificial limbs made anywhere in the world.

Others who are walking taller include a 72-year-old Ping-Pong champion who can now play six sets, and an office worker who enjoys dancing for the first time since she lost her leg 23 years ago.

Their new legs have been pro-

[See LIMBS, back page]

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