

REPORT
ON
THE FOURTH THAI-DANISH BOTANICAL EXPEDITION

by
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As the fourth venture in the series of Thai-Danish botanical studies, collections and investigations were made in the period January 16th to March 9th, 1964. The main purpose of the Expedition was to undertake a further study of the orchid flora in amplification of the preliminary work on the orchids of Thailand, the last part of which is at present in print*. The two authors of that paper were accompanied by *Bertel Hansen M.A.* of Copenhagen, who continued his earlier studies and collections of the Thai flora in general, also, the Royal Thai Forest Department and Agricultural Department were represented. The permanent members of the Expedition were:

Gunnar Seidenfaden, D. Sc. Botanical Museum, Copenhagen

Tem Smitinand, Curator of the Forest Herbarium, Royal Thai Forest Department

Bertel Hansen, M.A. Botanical Museum, Copenhagen

Chamlawng Phengkhlai, Chief, Section of Forest Botany, Forest Products Research Division, Royal Thai Forest Department

Damrong Chaiklom, Chief, Section of Forest Entomology, Royal Thai Forest Department

Sakol Suthisorn, junior assistant, Section of Taxonomic Botany, Department of Agriculture

Bunnak Sanghachand, plant collector, Section of Forest Botany, Forest Products Research Division, Royal Thai Forest Department

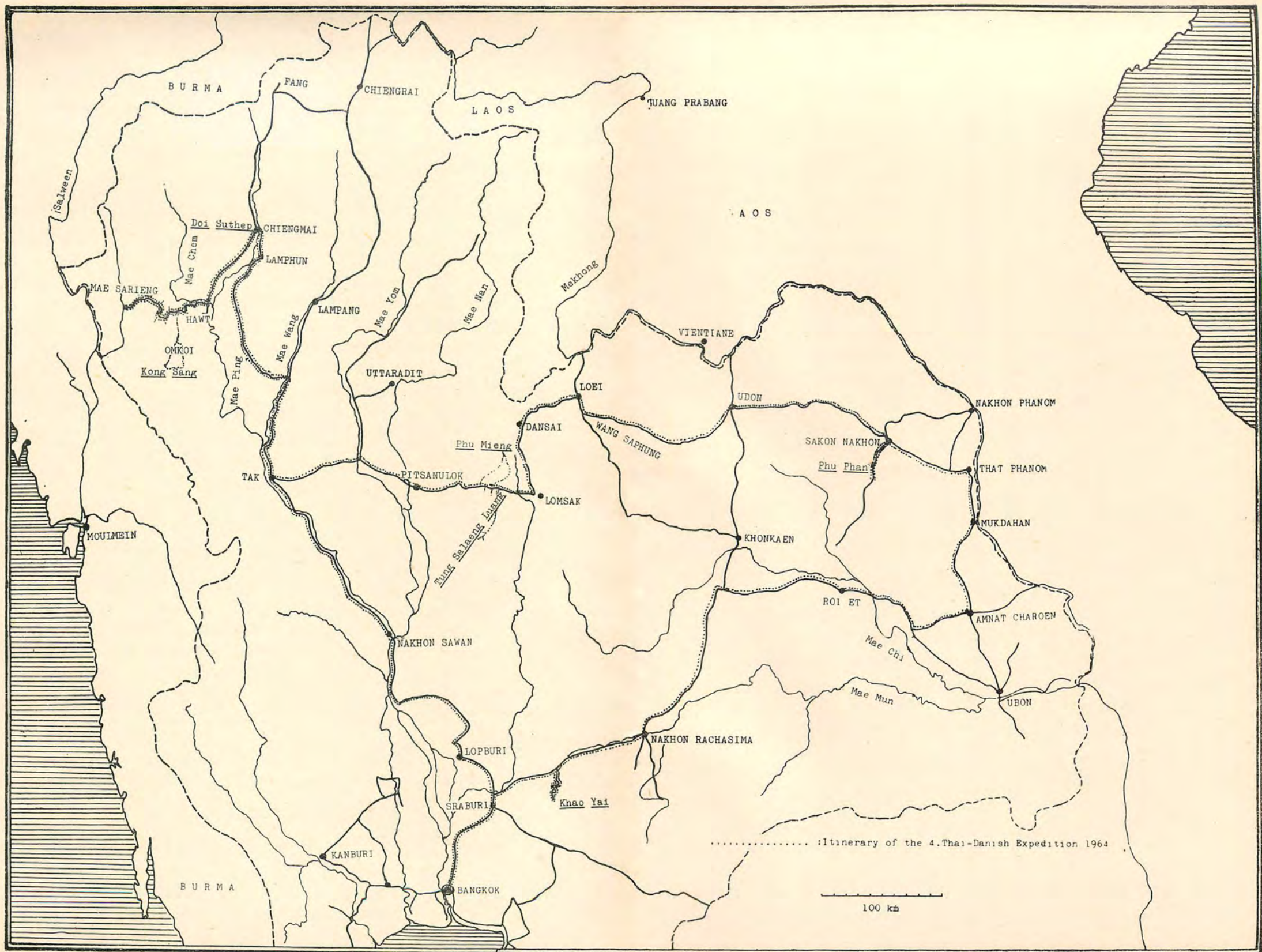
The party left Bangkok by a landrover on January 16th, 1964 and went via Chiangmai to the first base camp, situated on the Mae Chaem river bank at km 16 on the new road under construction from

*Gunnar Seidenfaden & Tem Smitinand: The Orchids of Thailand. A preliminary list I-IV. 1959-64. Published by the Siam Society and distributed outside Thailand by M. Nijhoff, The Hague, The Netherlands.

Hawt to Mae Sarieng, about 100 km south-southwest of Chiangmai (see fig. 1). This camp, very well situated, and competently prepared in advance by the Forest Department, served the Expedition until February 5th, interrupted by a trip towards the South between January 19th and January 28th. The party set out from the Mae Chaem camp to Omkoi (about $17^{\circ}48'N$.lat., $98^{\circ}22'E$. long.), a village which in the dry season can be reached by jeep on a trail of about 45-50 km, starting at km 39 on the Mae Sarieng road. In Omkoi bearers were hired, and for a week collections were made from camps at 1200 to 1600m altitude in the rugged mountaineous area to the Southwest of Omkoi, the highest point reached being Khun Kong Sang at 1800m altitude (about $17^{\circ}42' N$. lat., $98^{\circ}18\frac{1}{2}'E$. long.). The Kong Sang ridge, stretching from this point towards the East, was crossed and the party followed the Mae Lan river towards the East down to about 900-1000 m altitude, from where the return walk to Omkoi was easy.

Although the Kong Sang area, like all forests in North Thailand, bears witness to the devastating forest-burning tactics of the hill-tribes, quite extensive areas were traversed, especially at the higher altitudes, where old evergreen forests were predominant.

On January 28th the party returned to the Mae Chem camp, which was used in the following period for daily excursions along the road towards Mae Sarieng. This excellent modern road, built with great engineering skill, which at the time of the visit had been completed to a point about 20 km from Mae Sarieng, mainly follows the more important watersheds in a curve towards the South, extending over long stretches at altitudes between 1000 and 1200m. About midway are the vast high-lying areas around the Lawa-village Baw Luang; here the forest was not quite so damaged by fire as it was further towards the West, and in the mixed *Quercus*-*Pinus* forest many orchids were found when the altitudes were above 8-900 m. Characteristic of the landscape is also the many bogs and water-soaked spots which, although used by the local population for cattle-grazing, offer a varied and interesting flora. Collections were chiefly made along the main road, with side excursions to several places between km 31 and 72 from Hawt. The orchid flora at the higher



levels was rich in specimens but rather poor in the number of species. About 200 samples of living orchids were collected in the Kong Sang area and about 120 samples in the Baw Luang area, like all later collections they were successively sent by air via Chiangmai and Bangkok to the Botanical Gardens in Copenhagen for further study; most of them were still without flowers at the time of collection. The orchid flora was characterized by the large number of *Dendrobium* of the *Nigro-hirsuta* section, of which *Dendrobium infundibulum* with its 10 cm large flowers is perhaps the most outstanding, most commonly found were *Dendrobium cariniferum* and *D. scabrilingue*.

About 400 samples of other plants were collected and dried for further study. Among them were many not previously found in Thailand, and we believe that the material also contains some species new to science.

On February 5th the party left the Mae Chaem for the next working area, proceeding via Chiangmai and Pitsanuloke to the newly established National Park and Forest Reserve at Thung Salaeng Luang about 80 km East of Pitsanuloke. The beautifully situated modern forest station (about 16°50'N. lat., 100°54'E. long.) was not used as a base until the end of the month. Here again, collections were made on daily excursions along the main road between Pitsanuloke and Lomsak. In addition, two larger excursions were made.

First, in the period February 11th to 16th, a trip was made North of the main road, outside the present National Park. The party assisted by some 20 bearers, proceeded North from km 74 to the village Huay Kauk and from there towards West with increasing altitude to the Meo village Ban Rongka at 1320 m. North of this village a camp was established in the highly interesting Phu Mieng area at an altitude of about 1200 m (about 17°00'N. lat., 101°00'E. long.)

The Phu Mieng area, which towards the West falls almost vertically towards the lowlands, is characterized by undulating, more or less horizontal, rock formations, often without topsoil, and with many deep crevices. The northern part of the area has a mixture of small

patches with trees and open spaces of exposed rock surface, while towards the south the higher altitudes are covered by a fine evergreen jungle. Only on the slopes towards West has the original forest been spoilt by the Meos, and the whole area seems of such scenic and botanical interest that a National Park should be established immediately. This could probably be done without too much expense as the land seems of little economic interest to the local farming population. The area has many rare and little-known orchids, and several other plants new to Thailand and presumably new to science were collected. The rocky edges of the plateau were covered by millions of orchids among which the big *Thunia alba* must be a most impressive sight during the flowering season in June. The widespread growth of peculiarly shaped plants of the *Vaccinium* and *Rhododendron* families are alone a natural wonder that should be preserved for posterity.

The Expedition continued its collections following the Phu Mieng ridge towards the South, where a unique evergreen forest rises to a point of about 1600m. From this highest point a steep descent was made through the large Meo community of Kaw Poh, and the party returned through the Thai village of Ban Sai, reaching the Pit-sanuloke road at km 86.

Another excursion was made in the period February 21st to 26th to the Southern part of the Thung Salaeng Luang National Park. The party proceeded from Pine Grove at km 100 and walked with bearers from the village Thung Samaw about 35-45 km towards the Southwest, crossing the rivers Salaeng Haeng and Huay Khek. Most of the trail in this area passes through more or less undisturbed evergreen forest, thinning out towards the South in mixed Dipterocarps forest, then turning into a remarkable savannah area with large undulating grass areas supporting a rich fauna of elephants, buffalos, deer etc., which gather around the scattered ponds and rivulets to find shade under the picturesque groups of trees, flowering in all colours. This area (about 1° 35' N. lat., 100° 52' E. long.), at about 600-700m altitude, did not contain any rich epiphytic orchid flora, but interesting ground orchids were found, including a new colour variety of the huge beautiful *Phajus tankervilleae*.

After the return to the Forest Station further collections were made during the last days of the month. A digressive remark about the Thung Salaeng Luang National Park cannot be omitted. The Thai Government and the persons who took the initiative to establish this natural reserve are to be commended and congratulated. An area covering more than 2000 sq. km and of most varied composition, with rich virgin evergreen jungle, savannas, ponds, rocky rivers and water-falls of all sizes and shapes has been preserved for posterity. Trails are being laid out in the area to make it accessible to scientists and to the community as a whole. If the work here undertaken by the Thai Forest Department is continued and if sufficient personnel is assigned to protect the flora and the fauna against fires and poachers, this spot, easily accessible through the fine road from Pitsanuloke, could be developed into the most remarkable reserve in the whole of tropical Asia, attracting scientists and tourists from all over the world.

At the end of February the party had to terminate its work in Thung Salaeng Luang. It had been the intention to proceed North from here to an area where, according to the maps available, heights of 2000-2300 m were found along the Laotian border. Having received more modern maps of the area we found, however, that the altitudes in this area are not appreciably higher than those already studied. It was therefore decided to use the short period left for a preliminary survey of the Northeastern parts of Thailand from where very few collections of plants have hitherto been available.

On February 28th the party took to the road again and proceeded through Lomsak to the North through Dansai from where a difficult trail was followed about 100 km to Loei. In the following days the trip was continued from Loei through Wang Saphung and Udorn eastwards to Sakol Nakhawn. Excursions and collections were made in several localities, but, as was to be expected, the orchid flora of the Northeastern area appeared to be rather poor, and it seems that thorough investigations are required for making interesting finds; the time at disposal did not permit this.

An exception is the good forest at Phu Phan between Sakol Nakhawn and Kalasin. Here again, the Forest Department has marked out a large area as a Forest Reserve, and many interesting collections of orchids and other plants were made during the stay at the forest station. Remarkable was the discovery of a beautiful stand of what we believe to be a *Vandopsis* which will perhaps turn out to be the largest orchid in Thailand in *Vanda-Arachnis* group. It is to be hoped that the authorities will take special measures to ensure that this plant is not extinguished by orchid hunters in the future; specific regulations to this effect should be issued by the Thai authorities. The only other place we have seen this plant is at Khao Phra Viharn at the Cambodian border. As we have not yet seen the flowers it cannot be said for sure whether the Phu Phan plants are identical with those identified as *Vandopsis lissachiloides* in other areas of East Asia, but a few specimens have been brought to Bangkok and Copenhagen for study of the flowers. The plant flowers in the rainy season. Another interesting orchid find at Phu Phan was the minute *Trias intermedia* SEID. & SMIT., a new species which has not been found outside of Thailand and hitherto only recorded from Taruang, Chanburi and in a single collection from Prachinburi (cf. Orchids of Thailand p. 444).

After the stay at the Phu Phan forest station the party proceeded through That Panom, Mukdahan, Amnat Charoen, Roi Et and Nakhawn Rachasima to the Khao Yai National Park. This long trip through the Northeast confirmed the opinion reached further North that only very thorough investigations will yield important new records of orchids; superficially the dry Dipterocarp forests of North-eastern Thailand are characterized by rather few orchid species among which perhaps *Dendrobium secundum* and *Ascocentrum miniatum* are predominant.

The orchid flora of Khao Yai, the last area visited by the Expedition, has been enumerated by P.F. & V.M.S. *Cumberlege* (Nat. Hist. Bull. Siam Soc. Vol. 20, No. 3, 1963) and it was most useful for the party that these two authors joined the excursions for a few days at Khao Yai and assisted in the collection of the most interesting and questionable species which were taken to Copenhagen for further study. A good foundation for our knowledge of the exceedingly rich

orchid flora of this area has been laid through the work of these two authors; further studies will undoubtedly add to their list. Due to its convenient location the Khao Yai area could form an excellent center for the study of a large part of the Thai orchid flora. It is, of course, important that the strict regulations forbidding visitors to remove plants from the park should be fully observed in the future.

On March 9th the party returned to Bangkok; the landrover had then carried the expedition over a distance of some 4900 km.

The Fourth Thai-Danish Expedition was made possible through grants from both countries. The total expenses amounted to about Bt. 130,000. Of this, Bt. 55,000 was supplied by the Thai Government, Bt. 24,000 was made available in the form of a direct grant from the Carlsberg Foundation in Copenhagen, and the remaining sum came from a special fund administered by The Siam Society and established in connection with a grant of Bt. 150,000 from the Carlsberg Foundation towards the printing of "Orchids of Thailand".

The members of the Expedition wish to express their gratitude to the Thai Government, to the Carlsberg Foundation and to the Council of The Siam Society for the sums made available. The expenses of the trip could, however, only be kept within the above limits through several other kinds of assistance. Thanks are due to The East Asiatic Co. Ltd. which transported the equipment and collections between Copenhagen and Bangkok without cost for the Expedition. The Expedition is also indebted to the Danish Ambassador to Thailand, Mr. *Ebbe Munck*, who made his landrover available for the duration of the trip. Also The Royal Thai Forest Department supplied transportation for our heavy equipment on several occasions. The Director of the Research Centre of The Siam Society was most helpful during the preparations of the trip and The Siam Society sponsored the whole enterprise.

In many different ways we enjoyed the support of the Thai Government and its different administrative branches. Through the Thai Ministry of Foreign Affairs the local authorities had been informed of our work, and everywhere we were assisted in an efficient and friendly way by everybody from the Governors to the local Nai

Amphurs. The Forest Stations were opened for us, and everywhere we received full assistance from local Forest Officers in all practical matters, during our stays at the establishments as well as during our excursions, where good local guides and bearers were selected for us. To all these friends, old and new, the members of the Expedition wish to express their heartfelt gratitude.

The scientific results of the Expedition can only appear after full studies by specialists in the different branches of botany. Large number of living orchid plants have been sent to the Botanical Gardens in Copenhagen, where they will be kept under constant study. Large collections of herbarium material have been added to the earlier Thai-Danish collections and will, together with alcohol material etc., be placed in the herbaria of Bangkok and Copenhagen after identification. It is the hope of the members of the Expedition that new knowledge of the immense flora of Thailand will thereby be gained, but it is quite clear that two months' collections represent only a small step towards the ultimate aim of reaching a full picture of the Thai flora. It is to be hoped that the good Thai-Danish co-operation in the botanical field will be maintained and that continued good assistance from Governments and from foundations and individuals may be secured so that the work can go on.