



# FAOPS

## NEWSLETTERS

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 2nd Vice President. X.L. Yang  
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 F. Motamedi,  
 R.Rahamimoff,  
 H.J. Singh,  
 J.A. Young

## WELCOME TO SHANGHAI

Under the auspices of the Federation of Asian and Oceanian Physiological Societies (FAOPS), the Third FAOPS Congress will be held in Shanghai, China on November 7 - 10, 1994. On behalf of the Organizing Committee, I would like to extend our cordial invitation to you and your colleagues to attend the grand meeting. It will be the first congress after FAOPS was formally established in 1990, and certainly a very enjoyable chance for all scientists who are interested in physiology and allied subjects to gather and discuss the recent advances and future development of physiology in this region of the world.

The scientific program of the Congress will consist of plenary lectures, symposia with invited speakers, oral presentation and poster demonstration with opportunities for group discussions, aiming at copying with the international trends of development of physiological sciences in Asian and Oceanian countries, which is also the purpose of initiation of FAOPS at large. Scientific Program Committees, both international and local, have been established to make the best endeavors to reach the goal of the Congress.

We particularly encourage young colleagues to join us in the Congress. Intensive research work, being conducted by them, is very impressive and worth of providing support. Some special arrangements are being made to attract more young scientists to attend the Congress.

Various pre- and post- congress tour of Shanghai municipality and other scenic spots in China will be arranged according to the choice of the participants. As you know, Shanghai is the economical center of China and now developing at an unprecedented speed with our country's step by step implementing the policy of opening to

the world. Besides, China has a long history of civilization leaving many relics of archaeological interest, such as the Great Wall north to Beijing and Terra Cotta Warriors of Qin tomb in Xian. Scenic spots, such as West Lake of Hangzhou, and Li river of Guilin are all worth of paying a visit. In short, we will do our best to help you make a pleasant trip to China.

The second circular with further information about the convention of the Congress will be sent to you as soon as possible. Any suggestions which you and your colleagues might have on the scientific program or other arrangements for the Congress would be greatly welcomed by the Organizing Committee in order that a more satisfactory planning can be made. Please send all correspondence to the Secretariat of the 3rd FAOPS Congress, which has been established at the following address :

Secretariat  
 Dr. D. P. Tan, General Secretary  
 Shanghai Institute of Physiology  
 Chinese Academy of Sciences  
 320 Yue -Yang Rd.  
 Shanghai 200031  
 China

We greatly appreciate your support and enthusiasm and earnestly hope, in anticipation of your participation, that both scientific sessions and social events will facilitate exchange of ideas and promoting joint interests for the development of physiological sciences in this region and strengthen international tie of friendship.

It will be certainly a Congress to remember. Hope to join us.

Xiong-Li Yang, Ph.D.  
 Chairman of the Organizing  
 Committee  
 of the 3rd FAOPS Congress

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# NEWS FROM COUNCIL

## MINUTE OF THE SECOND FAOPS COUNCIL MEETING DECEMBER 12, 1992 SHANGHAI INSTITUTE OF PHYSIOLOGY, CHINESE ACADEMY OF SCIENCES, SHANGHAI

*Those who attended at the meeting were :*

M. Ito  
S.K. Manchanda  
X.L. Yang  
C.Y. Chai  
C. Pholpramool  
W.G. Kim  
F. Motamedi  
R. Rahamimoff  
H.J. Singh  
D.P. Tan (invited by X.L. Yang)

### FAOPS OBJECTIVES :

- To encourage the advancement of the physiological sciences,
- To facilitate the exchange and dissemination of knowledge in the field of physiological sciences and related fields.
- To foster and encourage research in the field of physiological sciences in Asia and Oceania,
- To promote the Congress of the Federation of the Asian and Oceanian Physiological Societies (FAOPS Congress),
- To promote such other measures as will contribute to the development of physiological science in Asia and Oceania.

### **Agenda 1: Greeting by the President**

President M. Ito called the meeting open at 9.10 am. He then thanked all council members who can attend particularly the host of the meeting, Prof. X.L. Yang and the Chinese Academy of Sciences.

### **Agenda 2: 2nd Vice-President's report on the 3rd FAOPS Congress**

2nd Vice-President X.L. Yang asked permission from the Council to invite Prof D.P. Tan, the General Secretary of Local Organizing Committee of the 3rd FAOPS Congress, to attend the meeting so as to report the activities of the Local Organizing Committee on his behalf.

The Committee had prepared 2,500 copies of the 1st announcement of the 3rd FAOPS Congress and distributed by airmail to all FAOPS council members and member societies. A list of 23 titles/themes of symposia have been considered and proposed to the Council. Three satellite symposia on vision, hypoxia physiology and renal physiology (in collaboration with Prof. T. Morgan) have also been suggested by the Local Organizing Committee. There have been suggestions by the Council to change some and add few more titles in order to cover additional areas of physiology. However, the final programme will be decided by the Local Committee. The Committee had made a

survey on the venue for congress and found that there is no single place that has big hall to accommodate more than 500 people for plenary session and several medium size rooms for symposia or free communication sessions. Prof. Yang proposed that the opening ceremony may take place in one hotel and the main scientific sessions in the other. After discussion on this matter the Council felt that the final decision should be made on the basis of cost-effectiveness by the Local Committee.

Prof. Yang asked for recommendation on the scientific programme committee. The Council suggested that there should be two committees, an International and a Local. Prof. Yang should serve as chairman of both committees. All members of the Council will be the International Scientific Programme Committee. Should there be any serious conflict between the two, final decision shall be made by the International Committee. The Council also recommended that any workshop related to the Congress should be held before and satellite symposia after the main activity.

A request of more seed money of US\$ 10,000 for the 2nd announcement and other preparations was made by the organizer. Before this was considered, Prof. Ito asked Prof. S.K. Manchanda, Chairman of the Organizing Committee of the 2nd FAOPS Congress in New Delhi in 1990, to brief his action plans and financial scheme so as to give some in-formations for the organizer. After the report and some discussion on various matters, the request for the seed money was approved.

### **Agenda 3: Secretary's report**

Dr. C. Pholpramool reported the activities of the Secretariat during the year 1992. A total of 6,300 copies of the first issue of FAOPS Newsletter had been published and distributed to thirteen societies. The second issue is in preparation. The progress of the prepa-

(Continued on page 6)

# PHYSIOLOGY UP-DATE

## Neural Regulation of Visceral Function : Homeostasis, Homeostatic Motivations and Heterostasis S.K. Manchanda

### HOMEOSTASIS

The term **homeostasis** (homeo + stasis in Greek, i.e. same + position, sam - sthiti in Sanskrit) as first employed by the American physiologist Walter Cannon signifies the tendency of the body to keep its internal environment constant and thus provide it a stability. In his own words : "As examples, I may cite the thirst when there is need of water, the discharge of adrenaline which liberates sugar from liver, when the concentration of sugar in blood falls below a critical point, and the increased breathing which reduces carbonic acid when the blood tends to shift toward acidity." Maintenance of homeostasis envisages a feedback regulation and requires integrative processes directed by the central nervous system and executed by the autonomic system, the endocrine system and those motor neurons which control motivational behaviour.

The role of autonomic nervous system in the maintenance of homeostasis by virtue of its controls on visceral activities is well recognized and a good deal has been written about the types of reactions involved. Claude Bernard's original concept that it "is the fixity of **milieu interieur** which is the condition of free and independent life" and Walter Cannon's term "homeostasis" both imply that the constancies are maintained around the characteristics defining the normal resting state or what has popularly come to be recognised as a battery of set points. The body thus reacts to resist changes from the norm and the somatic, autonomic and endocrine systems act in an integrative manner to restore normality after it has been disturbed. Most neural mechanisms which restore homeostasis are located in the hypothalamus. It is now well accepted that

the limbic system receive direct or indirect information from the disturbed internal environment and in return send integrating signals to autonomic-motor neurons and endocrine organs using the synaptic network available in the reticular formation of brain stem for appropriate modification of various visceral activities.

### HOMEOSTATIC MOTIVATIONS

For long, psychologists have been stating that variations in behaviour can be accounted on the basis of motivational state of the animal. It can now be said that specific homeostatic needs of the body do determine level of motivation in humans and other animals at least with regard to behaviours which regulate body temperature, thirst and feeding. Professor Anand in his review article (1) very ably and impressively argued in favour of the glucostatic hypothesis to explain the alternation of hunger and satiety and the resulting variations in food intake. We too contributed in a small manner to the development of such a hypothesis by establishing that in the fed state of monkeys and cats when glucose utilization was high, the electrical activity of the satiety centre (VMH) was high and that of the lateral hypothalamus (feeding or hunger centre) was somewhat low while in the hungry state, when glucose utilisation was low, the activity of satiety centre too was low while that of lateral hypothalamus had increased. We had then concluded the possibility of hypothalamus having glucoreceptor mechanism to sense the level of glucose utilisation and facilitate glucose homeostasis by regulating food intake. It was around that period that Prof. Oomura demonstrated electrophysiologically by recording unit potentials in the rat hypothalamus the presence of gluco-receptor and gluco-sensitive units among the neurons of VMH and LHA regions and later worked out the electrophysiological relationship between LHA, globus pallidus and substantia nigra. Many other glucosensors reflecting information on hunger and satiety have been since identified and even the sequence of their development after birth has been worked out. Modulatory role of various neurotransmitters too has come into focus. It is interesting that the same lateral hypothalamic area which was designated as feeding centre when challenged with injections of ionic solutions leads to corresponding changes in the urinary electrolyte excretion. Of course we now know that hypothalamus has quite a variety of neurons that sense a wide range of electrolytes, hormones, metabolites and thermal parameters again for providing feedback information to possibly set into motion a similarly wide range of inhibitory or excitatory homeostatic reflexes.

Homeostatic needs of body tissues are not the only factors which determine feeding behaviour. Instead motivation to eat is also regulated by many factors which do not belong to internal environment. Taste and smell of food, its texture, viscosity, thermal quality and how it looks like also play a significant role in determining when and how much to eat. Professor Sharma who has done pioneering work in this field feels that signals of homeostatic needs are integrated with other sensory signals, a process which he terms as afferent integration (1). In his own words : "Flow of information from extero and entero-receptors to the brain is not all in one direction. Various strategies are used by the animal to gather and analyse the information and react in

*(Continued on next page)*

strict accordance with the requirements of **external and internal environment**. ...this is achieved by "tuning" of receptors through the use of centrifugal controls via short and long feedback loops. These controls allow sensory pathways to act as variable filters so that stimuli tagged with a particular attribute or feature alone are allowed for detailed analysis. By such means, it is possible to attenuate or amplify afferent signals or switch "on" or "off" the inputs, thereby selecting a particular input at a particular time"

Recognition of the influence of cues from external environment in the regulation of motivational states is consistent with the view that homeostatic regulations employing a system of closed loop feedbacks do not cover the entire range of controls exercised on visceral actions accompanying various behaviours. While analysing the neural controls regulating cardiovascular function Manchanda (2) distinguished two types of input-output systems : (i) the continuously active homeostatic controls stabilized the system's behaviour expressed in terms of blood flow and pressure by sensing cues from the system's behaviour itself. This is a closed loop system ; on the other hand (ii) sensory inputs from cutaneous touch, heat, cold, pain, and muscle stretch, as also from auditory, visual and olfactory senses in special circumstances can lead to autonomic reflexes involving acute rise or fall of blood pressure and cardiac acceleration or slowing. These cardiovascular controls are components of open loop systems which are not regulatory for the stability of the system and serve essentially to adjust the cardiovascular activities to fulfil the needs of other body functions, e.g. emotional and emergency reaction for body defense, muscular exercise, temperature regulation, and so on. The neuraxial heirarchy involved in the elaboration of such visceral functions will be, it is understandable, as complex as the task or behaviour to which the visceral function is coupled, and in this connection, we should keep in mind the role played by cerebellum in modulating the autonomic activities (3,4) in the same manner as the activities of the musculoskeletal system. In a similar way, it would be perceivable that certain motivated behaviours may not be homeostatic in nature. For example, sexual responses or plain simple

curiosity do not appear to be controlled by specific tissue deficits. Hedonic factors, ecological constraints and even mechanisms anticipatory to homeostasis will have a role to play in determining the level of motivation in most behaviours. It will be beyond the scope of this lecture to give a detailed account of these factors. Surely, however, higher intellectual functions like memory and learning will have to be mobilized for these factors to be effective and visceral changes will occur *pari passu*. The fact that such possibilities are not unreasonable is evident from many studies of autonomic conditioning (5).

## HETEROSTASIS

In effect, there are two concepts : 1) one involves preservation of essential constancies or homeostasis in Cannon's terms "the coordinated physiological processes which maintain most of the steady states in the organisms" ; though not stated, it implies disturbance of the states and later their restitution, and 2) establishment and maintenance of balances in non-normal states which is equally essential. This latter was spoken of as **heterostasis** by Selye (6) (hetero=other than the same or unusual ; stasis=position). The importance of maintenance of balance and the seriousness of imbalances was recognized by early Greek and Chinese physician-philosophers. The Hindu physicians in their treatises on **AYURVEDA** have always emphasised the maintaining of balance among the three principles of **VAT, PITTA,** and **KAPHA** for a healthy life.

The constancies normally maintained in the body through somatic and visceral cooperation are quite dissimilar. Body temperature does show diurnal and other fluctuations of about 1.5°C above and below the agreed upon normal mean of 37°C but in the activities and exposures of daily living it may swing even beyond this range (35-40°C). As extremes of internal temperatures are approached, counter reactions become stronger and stronger but eventually cease above and below certain limits (42-27°C). A homeotherm then becomes poikilotherm and the term "poikilostasis" may be useful at times.

The matter of more importance to a consideration of integrative reac-

tions is that set points or normal values can shift and individuals can function quite well for long periods at a different level of balance. The term "heterostasis" then is appropriate when we speak of unusual states by somewhat different patterns of reaction. Presumably one might observe in the same individual maintenance of a normal state of say body temperature homeostasis but accompanied by a special balance in another state say metabolic heterostasis. This raises the question of interrelationship of states.

What we define as body states differ remarkably as do their set points and constancies. There is an energy intake-energy output balance and a basal metabolic rate indicative of normality. The variations from the mean which are considered to be within the confines of normality are vastly greater than for body temperature. Blood glucose levels also fluctuate greatly within confines which do not evoke reactions against hypoglycaemia or hyperglycaemia. The central nervous system with the help of its intricate circuitry at various levels of its heirarchy monitors simultaneously many body states each of which has its own normal set point, normal variations and thresholds to initiate various compensatory reactions. There is a heterogeneity of states. Our usual custom is to consider one state only at a time but in actuality all are affected together and are controlled together. It is almost impossible to change one state without affecting the others. A high metabolic activity in tissues creates more heat, depletes blood glucose more quickly and puts some stress on maintenance of acid base balance. In reality all states are being managed together and this requires a high degree of differential or selective action. Maintenance of certain constancies is more important to survival than is maintenance of others. Stores can be depleted, debts acquired and even some chronic imbalances tolerated. The central interactions required to relate and adjust balances continue to be a challenge to our methodologies and analytical skills.

We may also keep in mind that during even low levels of behavioural activities body states are changed and some show definite cyclical fluctuations. Just curiosity at various levels of

# MEETING CALENDAR

## July, 1993

- 4-8 : International Society of Biomechanics XIV th CONGRESS, Paris, France  
For further details :  
ISB 93, Convergences, 120 Avenue, Gambetta, 75020 Paris France Fax (01033) 140310165
- 17-20 : Eleventh Iranian Congress of Physiology & Pharmacology Tabriz, Iran.  
For further details :  
A. Gandika  
Tabriz, University of Medical Sciences.  
Tabriz, P.O.Box 4366  
Iran, Fax (009842) 342761

## August, 1993

- 1-6 : XXXIInd International Congress of Physiological Sciences (IUPS CONGRESS) Glasgow, Scotland  
For further details :  
IUPS Congress Office, CEP Consultants Ltd, 26-28 Albany street  
Edinburgh EH1 3 QH,  
Tel (031) 5572478,  
Fax (031) 5575749.
- 9-13 : Symposium on Temperature Regulation, University of Aberdeen, Scotland.  
For further details : Prof. A.S. Milton, Div. Pharmacology, Univ. of Aberdeen, Marischal College, Aberdeen, AB 9 1 AS, Scotland, Tel (0224) 273036, Fax (0224) 273019.
- 9-13 : Chemoreceptors and Chemo reflexes in Health and Disease, University College Dublin, Dublin, Ireland.  
For further details :  
Dublin Chemoreceptor Meeting, C/O Prof. R.G. O'Regan, Dept of Human Anatomy and Physiology, University College, Earlsfort Terrace, Dublin, Ireland.

## September, 1993

- 5-8 : Computers in Cardiology Meeting, Imperial College,

London.  
For further details :  
1993 Computer in Cardiology Meeting, Centre for Biological Medical Systems, Mech. Eng Building, Imperial College of Science, Technology & Medicine, Exhibition Road, London. SW 7 2 BX,  
Tel (071) 22585 25,  
Fax (071) 5896897

8-22 : Microelectrode Techniques for Cell Physiology, Plymouth  
For further details :  
David Ogden, National Institute for Medical Research, The Ridge way, Mill Hill, London NW 7 1 AA, Fax (081) 9064477.

17-19 : European Working Group on Cardiac Cellular Physiology 17 th Meeting, Graz, Austria.  
For further details :  
Prof. B. Koidl, Karl - Franzens - Universitat Graz. Institut fur Medizinische Physik u. Biophysik, Harrachgasse 21, A-8010. Graz, Austria.

## October, 1993

- 2-5 : Physiology and Pharmacology of Motor Control, San Diego, California, USA.  
For further details :  
Miss Linda Buckler, Membership Meetings Office, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991, USA, Tel (0101) 301 530 7171,  
Fax (0101) 301 571 1814.
- 25-28 : International Conference on Gastrointestinal Hormones and Gastrointestinal Motility, Beijing, China  
Deadline for abstracts : 15 July 1993.  
For further details :  
Mr. Ming Zhang, P.O.Box 300, CICCST, Beijing 100086, China,  
Tel (010 861) 8313335  
Fax (010 861) 8316091.
- 26-29 : 2nd Intercongress Symposium of the Asia and Oceania Society for Comparative Endocrinology, Chiangmai, Thailand.  
Deadline for abstracts : 30 June, 1993.

For further details :  
Prof. P.Varavudh, Dept. of Biology, Fac.of Science, Chulalongkorn Univ., Bangkok 10330, Thailand,  
Tel (662) 251-1949,  
Fax (662) 255-7734.

## November, 1993

- 2-5 : 2nd International Conference on Sports Medicine, Beijing, China.  
Deadline for abstracts : 3 July, 1993.  
For further details :  
Dr. Zhang Ming, Beijing International Hotel No. 9 Jian Nei.  
Dajie, Beijing, China,  
Tel (010861) 512 6688 ext 1534 Fax (010 861) 8316091.
- 17-20 : Signal Transduction and Gene Regulation, San Francisco, California, U.S.A.  
For further details :  
Miss Linda Buckler, Membership/Meeting Office, Amer. Physiol. Society, 9650 Rockville Pike, Bethesda, MD.20814-3991, U.S.A.,  
Tel (0101) 3015309171,  
Fax (0101) 3015711814.

## December, 1993

- 21-23 : 4 th Biennial & 1st International Physiology Conference, Lahore, Pakistan  
Deadline for abstracts : July 30, 1993  
For further details :  
Prof. Shahnaz Javed Khan  
Chairperson, 4th Biennial Physiol. Con. Postgrad. Medical Institute, 6- Birdwood Road,  
Lahore 54000, Pakistan

ration for FAOPS Directory was rather slow. This was because only 7 societies had sent their lists of members containing the requested informations. It was hope that the Directory should be published before the 3rd FAOPS Congress. The Council approved the Secretary's proposal to include some advertisements in the Directory so as to raise extra funding for the cost of publication.

The Council meeting was arranged by the Secretariat in collaboration with Prof. Yang and his colleagues in Shanghai. A sum of US\$ 2,000 will be allocated by the Treasurer to support local expenses. Prof. Ito has raised extra US\$ 5,000 from Brain Science Foundation to support travel expenses of 5 Council members.

At present, FAOPS has 12 regular members which include :

1. The Australian Physiological and Pharmacological Society (APPS)
2. The Chinese Association for Physiological Sciences (CAPS)
3. The Chinese Physiology Society (CPS)
4. The Federation of Indian Physiological Societies (FIPS)
5. The Iranian Physiology and Pharmacology Society (IPPS)
6. The Israel Society of Physiology and Pharmacology (ISPP)
7. The Japanese Physiological Society (JPS)
8. The Japanese Society for Physical Fitness and Sports Medicine (JSPS)
9. The Korean Physiological Society (KPS)
10. The Malaysian Society of Pharmacology and Physiology (MSPP)
11. The Physiological Society of New Zealand (PSNZ)
12. The Physiological Society of Thailand (PST)

There were 3 associate members :

1. The Physiology & Biochemistry Subsection Myanmar Medical Association
2. The Physiology Society of Sri Lanka
3. The Physiological Society of Vietnam

With regard to the relationship of FAOPS and IUPS, Prof. Ito told the Council that IUPS has recently created a new category of membership so called

affiliate member. Affiliation with IUPS will be dealt with at the General Assembly in Glasgow in 1993.

#### **Agenda 4: Treasurer's report**

Prof. C.Y. Chai reported the FAOPS balance sheet on the Treasurer's account. A total of US\$ 25,398.00 was received as membership dues and initial donations from 8 societies. Matter concerning payments of membership dues has been extensively discussed. It was agreed that extra copies of the request for payment of membership dues to various should also be forwarded to all council members so that each council would help pursuing the request from his own society.

The Council approved a transfer of US\$ 2,000 from the treasurer account for local expenditures of the Shanghai Council meeting. Prof. Chai told the Council that an official document indicating that FAOPS is a non-profit organization is required for a tax exemption of the treasurer account. The Secretariat will prepare such a letter for Prof. Chai.

Extensive discussion had also been made on fund raising. Four sources of funding were mentioned namely; rich persons, foundations that support basic sciences, industries and FAOPS activities. The Commission on Fund Raising headed by Prof. Chai will explore and materialize this important matter.

#### **Agenda 5: IUPS Training Workshop in Shanghai 1994.**

President Ito informed the Council that he plans to propose an IUPS sponsored training workshop at the time of FAOPS Congress in 1994. Two types of training, for students and for teachers, have been proposed. After discussion, it was agreed that Computer Assisted Teaching (CAT) in Physiology should be considered as a priority. Prof. Rahamimoff will be responsible for organizing the workshop. Participants should include 10 local scientists, 10 foreigners and 5 teachers. Persons who can help teaching were Dr. R.E. Kemm (Australia), Dr. U. Nayar (India) and Dr. Peknam (Malaysia). A total budget of US\$ 20,000 was anticipated. This will be raised partly from IUPS, ICSU, IBRO and FAOPS.

#### **Agenda 6: Symposium on Renal Physiology in the 3rd FAOPS Congress**

A proposal was made by Prof. T. Morgan of the APPS to organize a satellite symposium on renal physiology at the 3rd FAOPS Congress in collaboration with the Chinese counterparts. Prof. Yang informed the Council that Prof. Yao will be the local collaborator of this symposium. The proposal was approved.

#### **Agenda 7: Report from Commission on Physiology Education**

Members of the Commission are;

- Prof. R. Rahamimoff (Israel),  
Chairman
- Prof. X.L. Yang (China)
- Prof. S.K. Manchanda (India)
- Colonel Dr. Udom Tipayamontri (Thailand)
- Dr. R.E. Kemm (Australia)
- Dr. H.J. Singh (Malaysia)

Several proposals for the activities of the Commission have been made and discussed. Two types of workshops, one for graduate students to promote research interest and a more advanced level, were considered. It was agreed that a reasonable proposal for workshops in the countries entitled for US A.I.D. Grants will be made by the Commission. Places for post-graduate training will be made available by the Commission after the informations concerning demands and supplies complied by Dr. Singh are completed.

#### **Agenda 8: Report from Commission on Research**

Prof. J.A. Young, Chairman of the Commission, had sent a letter of apology for his absence at the meeting and a written report of the Commission's activity. To date the Commission has the following members

1. Prof. J.A. Young (Australia),  
Chairman
2. Prof. J.I. Hubbard (New Zealand)
3. Prof. M. Lin (Taiwan)
4. Dr. H.J. Singh (Malaysia)

Dr. Singh had prepared a questionnaire on behalf of the Commission to obtain informations concerning the  
*(continued on next page)*

needs and offers for research training. To date the questionnaires have been disseminated among the Malaysian physiologists.

A guideline for the Commission's activity was requested by Prof. Young. After discussion on this matter, the Council requested Dr. Singh to revise his questionnaire so as to obtain information with regard to the needs for research training with an emphasis on technology transfers. The questionnaire should be forwarded to all Council members for further distribution to their corresponding societies.

The Council also agreed to ask Prof. Young to organize a symposium session on "How to Promote Research in Asia and Oceania" at the 3rd FAOPS Congress in Shanghai.

### **Agenda 9: Action plans for 1993.**

#### *(Physiology Up-Date)*

intensity can provoke behaviours and visceral reactions. It is appropriate therefore that we think more in terms of the dynamics of adjustments of body states and possibly rejuvenate the concepts of adjustments of body states and possibly rejuvenate the concepts of "trophotropic" and "ergotrophic" reactions of Hess as proposed by us earlier (7). These terms were proposed by Hess to avoid the implication that parasympathetic and sympathetic functions are always antagonistic; they also express an endeavour to focus attention on function rather than on

Next Council Meeting will be held in Glasgow during the IUPS Congress. The exact date will be decided later. A sum of US\$ 10,000 is expected to support travel expenses of the Council members. The budgeting schema for 1993 and 1994 were discussed, and the following were approved.

#### **1993**

Activities/Purposes	Amount (US\$)
1. Seeding money for 3rd FAOPS Congress	10,000
2. Council meeting in Glasgow	10,000
3. Dr. Singh's questionnaire	500
4. Secretariat	2,000
Total	22,500

#### **1994**

1. Supporting main 3rd FAOPS Congress	80,000
2. Subsidy for student's registration for 3rd FAOPS Congress	5,000
3. Supporting Commission on Physiology	3,000

Education (Visiting Prof. Scheme)	
4. Council meeting	7,000
5. Secretariat	2,000
Total	97,000

### **Agenda 10: Other matters**

A proposal to host the next congress of FAOPS in 1998 by the Australian Physiological and Pharmacological Society (APPS) conveyed by the Secretary was considered. Since there was no other proposal, it was accepted by the Council.

*The meeting was adjourned at 19.00 pm.*

**Chumpol Pholpramool**  
Secretary

concepts with anatomical confinements. The ergotrophic reactions are "coupled with energy expenditure" and its control and an "endolymphatic trophotropic" system provides for protection and restitution (8). Energy balance, protection and restitution cover a rather broad scope and perhaps the term restitution does not do justice to the concept of homeostasis in its entirety.

One final comment remains to be made. In humans higher intellectual functions have an important bearing on visceral regulations. Distinctive patterns of blood flow in different regions of brain

have been demonstrated just by thinking and imagining. Investigations on many subjects who practice **yoga** or various types of meditation demonstrate an extraordinary control on their autonomic and visceral activities and behavioural interventions of this nature are now being increasingly employed to produce mental relaxation and treat psychosomatic disorders manifesting adverse visceral effects (9,10). Indeed, the so called autonomic nervous system is not as autonomic as one is led to believe!

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# THE FIRST NATIONAL CONGRESS OF NEUROSCIENCE IN CHINA

The First National Congress of Neuroscience of China was held in Shanghai, China from Nov. 9-12, 1992. This Congress was organized by the Chinese Association of Physiological Sciences, Shanghai Society of Neuroscience and Beijing Society of Neuroscience. 369 neuroscientists from, different regions of China attended the congress. In the opening ceremony Professor C.P. Wu, Director of the Shanghai Brain Research Institute and member of the Chinese Academy of Sciences delivered a lecture about recent advances of Professor B.S. McEween of the Rockefeller University and Professor K.W. Yau of the John Hopkins

University presented plenary lectures. Professor T.P. Feng of Shanghai Institute of Physiology and Professor H.T. Chang of Shanghai Brain Research Institute, Chinese Academy of Sciences, were awarded medals by the Congress Organizing Committee in recognition of their outstanding contributions to the development of neuroscience in China.

The Congress received 486 papers and 321 speakers presented their work in five sections. The topics included receptors and ion channels; neuropeptides, neurotransmitter and synaptic transmission; motor and sensory systems; learning, memory and sleep; regulatory function of the autonomous

nervous system; neuroendocrinology, regeneration and transplantation of nerve tissue and clinical aspects of neuroscience.

In the Congress, the Chinese Society of Neuroscience (CSN) was proposed to be established, hopefully, in 1994 to speed up the development of Neuroscience in China and promote both domestic and international exchange and cooperation between neuroscientists.

(TAN DE-PEI)



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# FAO P S

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