

Switzerland, Compte No 39128. 4. 00. 001.

3. **Freshwater crayfish V** (1983) - Van Nostrand Reinhold, 115 Fifth Avenue, New York, New York 10003, USA. Cost is approximately US\$ 35 plus postage and handling. Check for exact price.

4. **Freshwater crayfish VI** (1986) - Prof. Per Brinck, Ecology Building, University of Lund, S-223 62 Lund, Sweden. Cost is US\$ 30 plus US\$ 5 surface postage.

5. **Freshwater crayfish VII** (1988) - Prof. Pierre Goeldin, Directeur du musé Zoologique, 6 Place de Riponne, CH-1005 Lausanne, Switzerland. Cost is 63 Swiss francs.

6. **Freshwater Crayfish VIII.** The manuscripts for Freshwater Crayfish VIII are being reviewed and publication is on-line in the coming year according to the editors.

7. **Freshwater Crayfish.** Some members have indicated a desire to obtain a complete series of Freshwater Crayfish, A Journal of Astacology. Anyone wishing to sell/purchase copies, especially of Vol. II and III, should contact the Secretariat so that the information may be presented in this newsletter.

IAA lapel pins & 1990 symposium posters

Attractive IAA Lapel Pins are available to members at the basic cost to the association - \$4.00 each including air mail postage. The IAA Symposium Poster, 4-color is available for \$15.00 each including air mail postage. Direct orders in US dollars to the IAA Secretariat, Box 44650, Univ. of SW Louisiana, Lafayette, Louisiana 70504, USA.

IAA membership

Dues for the period April 1990 - April 1992 are now due. A membership form is enclosed for your convenience. Please pay your dues promptly. Whether you have paid your dues nor not, please make copies of the dues form and recruit additional IAA members. Membership is open to anyone or any firm with a strong interest in astacology. Use the application form. Membership cost is for regular members US\$ 25, students US\$ 12.50 and business members US\$ 50. Those with monetary exchange problems may petition the secretariat for a reduction in dues to US\$12.50 for regular dues or no dues. A statement that demonstrates keen interest in and contributions to astacology must accompany any request for reduced dues or no dues. Do not hesitate to join the IAA, all members are sent back newsletters and any other mailings for the whole membership period. This means you get full credit for your dues whenever you join.

In England and Norway it is possible to pay in local currency by contacting D. Holdich and J. Skurdal, respectively.



Crayfish NEWS

IAA Newsletter

Volume 13, Number 3 July 1991

IAA

The International Association of Astacology (IAA), founded in Hintertal, Austria in 1972, is dedicated to the study, conservation, and wise utilization of freshwater crayfish. Any individual or firm interested in furthering the study of astacology is eligible for membership. Service to members include a quarterly newsletter, membership directory, bi-annual international symposia and publication of the journal Freshwater Crayfish.

Secretariat

The International Association of Astacology have a permanent secretariat. The Secretariat is managed by Jay Huner and the address is IAA Secretariat, P.O. Box 44 650, Univ. of Southwestern Louisiana, Lafayette, Louisiana 70504, USA; phone (318) 231-5239 / fax (318) 231-5395.

Officers:

•David Holdich, President, Dept. of Zool., Univ. of Nottingham, Nottingham NG7 2RD, England

•Jay Huner, President-Elect, Crayfish Center Univ., Southwestern Louisiana, Lafayette, Louisiana 70504, USA

•Jostein Skurdal, Sec./Treas., County Environ. Adm., Statsetatenes hus, N-2600 Lillehammer, Norway

•James F. Payne, Past President, Dept. of Biology, Memphis State University, Memphis, Tennessee 38152, USA

From the editors

Time is passing - the Baton Rouge meeting is still so vivid- however, in this volume we have included the information for the next IAA meeting, the IX International Association of Astacology Symposium. The Reading meeting in England is arranged on 5-10 April 1992. We will recommend all members to consider this opportunity to present their current results, meet colleagues and discuss crayfish in general. Deliver your booking form and join us in Reading- remember its our 20th anniversary !

Jay Huner and Jostein Skurdal

IAA Membership Extension

IAA have now nearly 300 members - we think more would like to benefit from the society. However, our information do not reach all potential members. Please help recruiting new members for the IAA. Next year is the 20th anniversary and lets all do an effort to show a prosperously growing association. Information material can be obtained from the Secretariat, and we need help to distribute the material on conferences etc.

New IAA Executive Board Member

Michele Wheatly, Dept of Zool, Univ of Florida, 223 Bartram Hall, Gainesville, Florida 32611, USA has accepted to be a member of the IAA Executive Board. Other members of the Executive Board for the period 1990-1992 is in addition to the Officers; P. Brinck (Sweden), J. Cukerzys (Lithuanian SSR), M. Fürst (Sweden), M. Geddes (Austarlia), C. Goldman (USA), O. Lindqvist (Finland), J. Reynolds (Ireland), P. Bagot (Turkey) and K. Westman (Finland).

Errors in current Directory

The Secretariat regrets two errors made in the listings of Honorary Life Members in the Current Directory. Gad Rausing was listed as an Honorary Life Member but the distinction was earned by his late father, Ruben Rausing. Likewise, Horton H. Hobbs, III was listed as an Honorary Life Member but the distinction was earned by his father, Horton H. Hobbs, Jr., who, although retired remains active. Apologies have been extended to the individuals involved and corrections have been made in the Directory Supplement which

will be mailed in July 1991.

IAA members honored in the USA

Members David Morehouse and Jay Huner were nominated for the new American Aquaculture Achievement Award for their work to develop the aquaculture industry in the USA. Mr. Morehouse was chosen to receive the award and it was presented to him on June 29, 1991. Mr. Morehouse has been a pioneer crayfish culturists in upstate New York and has served in a number of positions including Chairman of the Northeastern Regional Aquacult Center, President of the New York State Aquacult Assoc, and a Founder of the National Aquacult Assoc. Dr. Huner was nominated for his service to the Louisiana crayfish industry and with the IAA.

IAA Directory supplement

The IAA Directory Supplement, through July 1, 1991, has been published and is being distributed. Approximately 40 new members and late renewals are included as are updated addresses for members who have moved.

Missing members

Mail sent to the following members has been returned with no forwarding address. If anyone is aware of new addresses, please inform the Secretariat. Daniel J. Niquette, Moncks Corner, South Carolina, USA; Christine Colin, Phoenix, Arizona, USA; and Andrew Cameron, Western Australia, Australia.

Freshwater Crayfish Vol. VIII

Ed. Robert Romaine states that the manuscripts have been reviewed and are being returned to the authors for revision. Publication prior to our IAA meeting in April 1992 is anticipated.

Freshwater Crayfish Bibliography

President David Holdich has organized a bibliography for Freshwater Crayfish, A Journal of Astacology Volumes 1-7. This will be published, after revision, by the J of Shellfish Res. Reprints will be forwarded to IAA members when the bibliography is published.

Crayfish Workshop in Wales

President David Holdich organised a 2-day workshop on crayfish in the British Isles in May. This was held at the Llysdinam Field Center in Wales and was attended by representatives from 7 universities, the Ministry of Agriculture, Fisheries & Food, the National Rivers Authority, and the crayfish farming and consultancy communities. Three sessions were

held on "Conservation & Ecology", "Diseases, Ecophysiology & Ecotoxicology" and "Crayfish Farming". The IAA generously provided some financial assistance for the meeting. The workshop was very successful and the idea should be implemented in other regions as well. David Hodich (Dept. of Zool, Univ of Nottingham, Nottingham NG7 2RD, England) has edited a summary of lectures and discussions which can be obtained from him.

The American Society of Zoologists

IAA has been a co-sponsor of this meeting for some years now. A crayfish session will be organized if a sufficient number of crayfish papers are submitted. The meeting is scheduled for December 27-30, 1991 at the Hyatt Regency Atlanta Hotel in Atlanta, Georgia, USA. Information: Mary Adams-Wiley, Am Soc of Zool, 104 Sirius Circle, Thousand Oaks, California 91360 USA, Fax 805-492-0370.

Aquaculture practicums in the USA

Many students outside of the USA would like to take practicums in the USA but are unable to secure positions because of emigrations considerations. While they may enroll in university courses and work as students, costs of tuition are generally so high that it is pointless to come to the USA. The American National Future Farmers of America organization, however, operates an international student exchange which secures proper authorization for students to work in the USA without having to enroll in university programs. The employer agrees to pay the US minimum wage or more for periods of 3, 6 or 12 months. Currently, IAA member Miklos Thuranszky of Hungary is spending a 12 month practicum at the Crawfish Res Center at the Univ of SW Louisiana, Lafayette, Louisiana USA. Age limits vary according to location but are 24-27 years of age. Prospective participants must apply through offices in their countries. The U.S. coordinator is: Ms. Diane Crow, Program Assistant, Int Depa, Nat FFA Center, Box 15160, Alexandria, Virginia 22309-0160 USA, phone (703) 360-8838, Telex 899121, Fax (703) 360-5524.

Crayfish Aquaculture Expo 1992

Aquaculture Expo will be held January 12-16, 1992 in the New Orleans (Louisiana USA) Marriott Hotel. Culture of freshwater crayfish will be included in seminar systems, the trade show and two day long tours. Trade Show information: Bill Glasscock, Box 24868, Little Rock, Arkansas 72221 USA. Information: Hugh Purnell, 22 Ninth Fairway Loop,

Maumelle, Arkansas 72113 USA.

Conference Européenne sur les Crustacés

This conference is scheduled for August 31 - September 5, 1992 at the Museum National d'Histoire Naturelle in Paris, France. The program will focus on: Systematics & Phylogeny; Aquaculture & Fisheries; Ecology & Ecotoxicology; Nutrition & Metabolism; and Endocrinology & Neurobiology. Information: Jacques C. V. Arrignon, 24, rue de la Huitieme Division, F-60200 Compiègne, France.

International crayfish market situation

I. People's Republic of China. Member Shu Xinya [No. 18 Donghu Road, Hubei Fish. Sci Res Inst, Wuhan City, PRC] writes that crayfish processing is found in Hubei Province and Jiangsu Province. Since 1988, whole boiled crayfish and crayfish tail meat has been processed and exported overseas. The Hubei product, whole boiled, is mostly destined for Sweden and 130 tonnes was shipped in 1990. The Jiangsu product is tail meat and the quantity and destination(s) are unknown to Dr. Shu. Prices for the two products are \$US 1.80 per kg for the whole boiled crayfish and \$US 1.90 per pound both FOB.

II. Sweden. A. Past President A. Stellan Karlsson [Simontorp Aquaculture AB, S-270 35 Blentarp, Sweden] sends word that a recent report, "Swedish Crayfish. Production and Market", in Swedish, was published by LRF (Farmers Union) and Sveriges Fiskevatensagareforbund (Swedish Assoc of Water Owners) and authored by L. Aronsson, an independent consultant. The table "Total Production of Signal Crayfish 1985-90 and a Prognosis to 1995" and included the following data: 1985 - 200 T, 1988 - 250 T, 1989 - 450 T, 1990 - 600 T, 1991 - 700 T, 1992 - 850 T, 1993 - 950 T, 1994 - 1,050 T, and 1995 - 1,200 T. The 1990 average price to the producer was SEK 200 per kg (= \$US 32.75/kg) meaning that signal crayfish has a bigger turnover than the total Swedish herring fisheries!

B. Long time Board Member Magnus Fürst [Inst for Freshw Res, S-170 11 Drottningholm, Sweden] agrees that signal crayfish is increasing dramatically in Swedish waters. The volume has increased so much, in fact, that he reports a significant reduction in price paid to fishermen during the 1990 season. He attributes the rapid increase in volume to several years of good weather.

III. USA/Louisiana. A. Volume for the 1990-91 season may be as much as 50-80% that of a normal year (50,000 tonnes). As a result, prices were very high and very little crayfish meat has been frozen.

Therefore, meat will be scarce and prices will be high well into the 1991-92 season which will begin in November of this year. Note, however, that farmers with reasonable crops enjoyed their highest income from crayfish farming in many years.

B. The Louisiana situation is being further complicated by an investigation by the U.S. Justice Dep to determine if processors are unfairly manipulating. A federal grand jury began hearing testimony in mid-June 1991. There is no information from the grand jury and it is not clear how long it will deliberate before taking action.

C. Much of the wild crayfish caught in Louisiana come from flooded private lands. An association of land owners has marked these properties and is charging an annual fee for those wishing to harvest crayfish from the area. While fishermen acknowledge that they are catching the crayfish from flooded private lands, they contend that they have been historically permitted to do so without charge. It is likely that this matter will be settled in the courts. It has not had much effect on crayfish catch as catch has been poor throughout the region.

D. A new promotional campaign for Louisiana Soft-Shell Crawfish has been initiated in a joint effort between the Louisiana Seafood Promotion and Marketing Bd and the Louisiana Soft-Shell Crawfish Assoc. Information packages for the restaurant industry include a brochure with serving, price, preparation and recipe materials, a table tent, and an information card for wait staff. Information: Secretary, Louisiana Soft-Shell Crawfish Assoc, Box 44509-USL, Lafayette, Louisiana 70504 USA.

IV. France According to an article written by Past President P. J. Laurent [Le commerce extérieur des écrevisses en France en 1990. L'Astaciculteur de France. Volume 27 pp. 4-7, 1991.] France imported 748 tonnes of crayfish in 1990. Some 297 tonnes were alive and the remaining 451 tonnes were frozen. This was a marked increase over 1989 but about one third of the crayfish imported in the period 1980-1985 before the collapse of the Turkish fishery. Most of live crayfish were *Astacus astacus* from Turkey and most of the frozen crayfish were *Procambarus clarkii* from Spain. Other sources of crayfish included Portugal (*P. clarkii*) and Greece and Yugoslavia (*Astacus astacus*). Prices ranged from about 16 Francs per kg to 76 Francs per kg depending on species, source, product form, and market conditions. Most of the frozen crayfish are imported in September and October. Live crayfish are imported in relatively equal amounts in June, July, August, September, October and November.

EIFAC Crayfish working party

The tenth meeting of the working party on crayfish took place in Prague, Czechoslovakia in conjunction with the sixteenth session of EIFAC under the chairmanship of its convenor K. Westman. A report from the meeting is available. Information: Kai Westman, Finnish Game and Fish Res Inst, Box 202, SF-00151 Helsinki, Finland

Scandinavian Course on Crayfish

This course is scheduled for August 12-21, 1991 in Kuopio, Finland. It was organized by Past President and current Board Member Ossi V. Lindqvist [Dep of Appl Zool, Univ of Kuopio, SF-70211 Kuopio, Finland]. The course is being taught to provide Scandinavian students with information needed to manage and/or cultivate the species present in Scandinavia and those that they might expect to encounter when working away from the region. Instructors are all IAA Members and include: H Ackefors, R Gydemo and K Söderhäll, Sweden, J Huner, USA, W Momot, Canada, N Morrissy, Australia, R Romaine, USA and J Skurdal, Norway, as well as Prof. Lindqvist.

EIFAC Workshop on Crayfish Management

This workshop has been organized by Board Member Kai Westman [Finnish Game and Fish Res Inst, Box 202, SF-00151 Helsinki, Finland] and is part of the continuing United Nations - Food and Agriculture Organization European Inland Fisheries and Aquaculture Conferences dealing with various freshwater resources in Europe. It will be held August 21-23, 1991 in Kuopio, Finland immediately following the Scandinavian Course on Crayfish Management and Culture. Many of the participants in the Scandinavian course will join specialists from Finland and elsewhere in Europe. IAA President David Holdich will be a participant. A proceedings will be published and Dr. Westman may be contacted for further details.

Crayfish Grower Assoc in Finland

The crayfish growers in Finland have organized themselves in Ravuntuttajat r.y.s, and the chairman is Risto Uustalo, Samaljoki, Finland. There are presently some 50 crayfish culturists in Finland, mainly producing crayfish for stocking.

Astacology in the USSR

V. Fedetov (Gagarina Street 6, 23, 180004 Pskov, USSR) sends recent information about astacological developments in the USSR. An astacology seminar

was held 21-23 November 1990 in Leningrad and included 40 participants and 14 presentations. There is widespread interest in astacology in such areas as Leningrad, Rostov on Don, Kaliningrad, Volgograd, Latvia, Karelia, and Alma-Ata. As a result of the meeting, a move is now underway to develop a Soviet Assoc of Astacology. Culture efforts in the USSR are addressing two major problems - wintering of juvenile crayfish in natural water reservoirs and producing mature crayfish in 2-3 years with minimal mortality. During the international fishery exhibition (INRYBPROM-90 (6-15 August 1991) in Leningrad, Dr. B. T. Kahanov from Rostov on Don exhibited equipment for rapid collection of crayfish for stocking from breeding farms. Dr. Fedetov and Dr. Kahanov are creating crayfish breeding farms in Pskov and Velikie Luki.

Crayfish culture review

The Aquaculture of Shrimp, Prawn and Crayfish in the World: Basics and Technologies was published in 1990 by Midori Shobo Co., Ltd., Ikebukuro Nishiguchi Sky Bldg., 2-14-4 Ikebukuro, Toshimaku, Tokyo-171, Japan. Editor is Claudio Justo Chavez. A Spanish-language version is in press. An English-language version is in preparation by Haworth Press, Binghamton, New York USA. IAA members Jay V. Huner and James W. Avault, Jr. authored the general crayfish culture chapter and Dudley D. Culley authored the soft-shell crayfish chapter.

Crawfish-man, the Louisiana super-hero

Crawfish-Man is Louisiana's answer to the comic super-hero Superman. Normally a mild-mannered fisherman and man of nature, Crawfish-Man transforms into a super-hero, half-man, half-crawfish, when there is danger in the swamp. Crawfish-Man lived for many years in Baton Rouge with his creator Tim Edler. He has now moved closer to the Atchafalaya Basin, the site of many of his exploits, with Mr. Edler. For more information about Crawfish-Man, his books, and his new Real Cajun School of Cooking, write to Mr. Edler, Box 777, Loreauville, Louisiana 70552 USA.

Giant crayfish invasion

Millions of giant crustaceans are invading the capital yet Londoners know nothing about it says The Independent May 25 1991. The crustaceans are Turkish Swamp Crayfish which thrive in the murky London ponds and the article says they grow almost a foot long.

9th INTERNATIONAL SYMPOSIUM

INTERNATIONAL ASSOCIATION OF ASTACOLOGY



I HINDERTHALL, AUSTRIA 1972

II BATON ROUGE, LOUISIANA 1975

III KUOPIO, FINLAND 1977

IV THONON-LES-BAINES, FRANCE 1979

V DAVIS, CALIFORNIA 1983

VI LUND, SWEDEN 1986

VII LAUSANNE, SWITZERLAND 1988

VIII BATON ROUGE, LOUISIANA 1990

IX READING, ENGLAND 1992

20th ANNIVERSARY MEETING

READING UNIVERSITY 1992



APRIL 5th - 10th



INTERNATIONAL ASSOCIATION OF ASTACOLOGY SYMPOSIUM
READING UNIVERSITY ENGLAND
SUNDAY, APRIL 5th - FRIDAY, APRIL 10th 1992

ARRANGEMENTS

General

The Symposium will start with a Welcome Buffet on the evening of Sunday 5th and end after breakfast on Friday 10th. Lectures will be held in the Faculty of Letters Building from Monday 6th to Thursday 9th inclusive.

Poster Communications will be presented in the Zoology Museum on the ground floor of the School of Animal & Microbial Sciences close to the Faculty of Letters Building.

Registration Desk

The registration desk will be located in Wantage Hall of Residence on Sunday 5th from 16.00-22.00 h and in the Faculty of Letters Building from 08.30 h each morning.

There will be a registration fee of £12 per day for those not on a full package but wishing to attend the symposium on a daily basis. This entitles the payee to attend the lectures and poster displays, and have coffee and tea only. Bona fide students registered at Reading University are exempt from this fee.

At registration tickets will be issued for meals and excursions. These must be produced on request.

Accommodation (there are no price reductions for children)

125 single study-bedrooms have been reserved in Wantage Hall for the nights of Sunday 5th, Monday 6th, Tuesday 7th, Wednesday 8th and Thursday 9th. All the rooms have washbasins, but bath and toilet facilities are shared. Delegates will have access to tea/coffee making facilities, a laundrette, television, games room, and a bar until 23.00 h. Wantage Hall is 10 minutes walk from the Faculty of Letters Building. Delegates wishing for non-standard accommodation (e.g. hotels) should indicate this on their booking form and they will be sent details. A limited number of double rooms, and also some with full facilities, may be available in other Halls of Residence. Further information will be sent on request.

Meals and Refreshments (there are no price reductions for children)

Coffee and tea will be served in the Zoology Museum or the Faculty of Letters Building.

Lunches will be available at 13.00 h in the Cedar Room.

A Welcome Buffet will be held in Wantage Hall on Sunday 5th from 19.00 h onwards.

Dinner will be served at 19.15 h in Wantage Hall on Monday 6th and Thursday 9th.

Dinner on Tuesday 7th will be held at the Shire Horse Centre after the field excursion.

On Wednesday evening a Sherry Reception and Symposium Dinner will be held at 19.30h.

Breakfast will be served from 07.45h, including Friday 10th, for those staying in Wantage Hall.

Accompanying persons

Meal arrangements will be similar to the above although a separate programme of day-time events has been arranged - see separate sheet and booking form.

FIELD EXCURSION

A field excursion will be held after lunch on Tuesday 7th. This will include visits to native and alien crayfish populations followed by a visit to Stratfield Saye, the home of the Duke of Wellington, where one of the first signal crayfish populations was developed. A cream tea will be provided when we meet up with those on the accompanying persons trip.

After a brief stop back at Wantage Hall delegates will be taken to the Shire Horse Centre where there will be a buffet style evening meal followed by entertainment.

A visit to the Sonning Aquatic Research Centre of the University of Reading may be possible on the morning of Friday 10th for a limited number of people. The unit is mainly concerned with research into fish biology and aquatic weed control.

WEATHER

This can be very variable in April! As we will have to leave buildings to reach the lecturing facilities and again for coffee and tea it is suggested that you bring an umbrella!

TRAVEL

By Rail

Situated on the main line to the West and Wales, Reading is readily accessible from London. Journey time from London Paddington is 22 minutes by Intercity 125.

By Road

The University stands between the town centre and the M4 motorway. Drivers should leave the M4 at Junction 10 or 11. There is ample parking at Wantage Hall or close by the hall.

By Air

Travellers arriving at Heathrow or Gatwick will find reaching Reading straightforward. There is a coach link from Heathrow or a direct rail service from Gatwick to Reading Station. Taxis can be obtained at the station for Wantage Hall.

RESERVATIONS

Bookings accompanied by a 25% deposit must be received by October 1st, 1991. The balance will be due on January 5th, 1992. Delegates wishing to pay the full amount by October 1st can of course do so. Bookings made after October 1st must include full payment. Accommodation will be booked on a first-come first-served basis. Cheques/money orders should be made payable to "IAA - England" in sterling (£) only.

PRESENTATIONS

There will be approximately 75 slots for 20 minute lectures. The main lecture sessions will be: "Distribution, Ecology & Transplantations", "Behaviour", "Ecophysiology & Ecotoxicology", "Growth, Moulting & Reproduction", "Diseases & Immune Reactions", and "Astaculture - technology, management, production, nutrition, intensification". When you fill in the abstract form please indicate which session you think might be most appropriate for your lecture.

If your planned lecture does not fit into one of these sessions then put it under "Other" and additional sessions or a "General" session will be organised if demand is sufficient. Offers of papers and posters must be received by October 1st, 1991.

Papers based on presentations will be considered for publication in "Freshwater Crayfish IX".

The last lecture will be the "Abrahamsson Memorial Lecture" and will be entitled "A review of crustacean aquaculture with special reference to crayfish" given by Professor Hans Ackefors.

Poster presentations will be welcomed. Papers based on posters will be considered for publication in "Freshwater Crayfish IX".

ACCOMPANYING PERSONS TRIPS

MONDAY April 6th - all day trip to Windsor. Cost - £10 per head

A coach trip to the historic town of Windsor where the Royal Family have a castle. There will be a 2 hour guided tour of the town and castle grounds. Lunch is not provided. The afternoon will be free to visit other sites in the town, including the castle itself, although entry will cost extra.

TUESDAY April 7th - morning free. Afternoon - Stratfield Saye - no charge for those on accompanying persons package.

In the afternoon a visit by coach will be made to the Duke of Wellington's estate, Stratfield Saye. The group will then meet up with the delegates who will have been on a field excursion. A cream tea will be served. The party will then briefly return to Wantage Hall before setting out for dinner and entertainment at the Shire Horse Centre (this is included in the cost of the full package).

WEDNESDAY April 8th - all day trip to Portsmouth. Cost - £15 per head.

A coach trip down through southern England to the historic port of Portsmouth. Here you will be taken on a guided tour of the museum housing the "Mary Rose", the flag-ship of Henry VIII which was recently lifted from the seabed. This will be followed by a visit to the "Sea Life" aquarium. Lunch will not be provided. The coach will return in good time for the Sherry Reception and Symposium Dinner.

THURSDAY April 9th - all day visit to Oxford. Cost - £10 per head.

A visit to this historic university town. There will be a guided tour of the town and the colleges. Lunch will not be provided. The afternoon will be free for shopping.

Please note that these trips can only run if sufficient people book for them.

We are afraid that there are no price reductions for children.

Analysis of crayfish processing in the USA

The National Fish Inst. Inc. has, in cooperation with the National Fisheries Educ and Res Foundtion, has recently completed the following report: "Seafood Industry Hazard Analysis Critical Control Point Workshop and Model Tests Processed Crawfish, Final Report, March 1991." This report is a part of the continuing effort of the US Government to develop species specific national seafood inspection programs. The programs are designed to minimize expense to businesses while maximizing protection of the consuming public. Further information about this report may be obtained from the National Fisheries Education and Research Foundation, 1525 Wilson Boulevard, Suite 500, Arlington, Virginia 22209 USA.

Crayfish Project Awarded

Member Jeff Gunderson, Minnesota, USA recently received two Sea Grant awards for his efforts to develop Minnesota crayfish export industry. There have always been small harvests of Minnesota's wild crayfish stocks, but no market existed until Europe's native crayfish were devastated by a disease imported, ironically, from America. This year 17 tons of crayfish will be shipped to Sweden. Presently Gunderson is studying how well crayfish grow in rice paddies.

Crayfishes and shrimps of Wisconsin

This book, previously reviewed, in the IAA Newsletter is being sold at a reduced price of \$US 10.95 from the original price of \$US 14.95 by the Milwaukee Public Museum, 800 W. Wells Street, Milwaukee, Wisconsin 53233-1478 USA. Authored by members Horton H. Hobbs, III and Joan P. Jass and published in 1988, this text provides one of the best reviews of available literature on the various species present in Wisconsin many of which are widely distributed throughout the north-central USA. It is a very valuable addition to any library. The sale ends November 1, 1991. The library's mail order department ceases then.

News from J. Arrignon, France

Member Jacques Arrignon [24, rue de la Huitieme Division, F-60200 Compiègne, France] writes that "L'ecrevisse et son élevage" will be published in 1992 by Ellis Horwood Ltd., Chichester, United Kingdom and the Spanish version is available now under the title "Cria del Cangrejo de Rio" from Editorial Acibia, S.A., Zaragoza, Spain. Dr.

Arrignon is also coordinator of a series of short crustacean culture books published by Maisonneuve et Larose, 15, rue Victor-Cousin, F-75005 Paris, France. The latest book deals with culture of *Macrobrachium* spp. Reference is: Le Technicien D'Agriculture Tropicale. 16. Lest Crustaces Tropicaux d'Elevage. Coordonateur J. C. V. Arrignon. I. Elevage du Camaron - J. M. Griessinger, D. LaCroix & P. Gondouin. II. Elevage de la Crevette Peneide - M. Autrand. 1991. This book is published in French and a very useful addition to reference libraries.

Procambarus clarkii in Oregon

Member Emeritus John Wright encountered *Procambarus clarkii* in Oregon in the early 1970's. His observation has yet to be published. The crayfish were found in Bend, Oregon in a clear, fast running stream with a rocky bottom. The farmlands in the area are irrigated and the canals are ideal habitat for this species in the absence of competitors.

Monitor lizards and crayfish in Zambia

Member C. J. Grubb [Box 60287, Livingstone, Zambia] sent the following commentary about monitor lizards and crayfish. The monitor lizard (*Varanus niloticus*) is a voracious predator and feeds on just about everything that moves. They are serious problems in Zambian crayfish (*Procambarus clarkii*). It can swim a long way under water, can climb trees as it has long claws and runs very fast on land. It has powerful conical teeth and can give a good account of itself blowing itself up, then hissing loudly and lashing out furiously with its long tail. Many not so brave dogs are put to flight after trying to tackle a large monitor. Monitor lizards are egg layers and lay up to 60 leathery eggs in the ground or in termite hills. In riverine conditions the main enemy of monitor lizards are the crocodile and then small birds of prey. Monitor lizards are the worst enemy of the crocodile digging up and devouring the eggs out of the sand banks. These lizards are relished by most African tribes who say they taste like chickens. In natural conditions the food of the monitor lizard consists of small animals like rats and mice, birds and their eggs, other reptiles and even snakes, fishes, crustaceans, mollusks, insects, and carrion, even rotten fish until their stomachs are distended. In crayfish ponds, they feed almost exclusively on crayfish. The best way to get rid of monitor lizards is by a short cane pole with strong line, steel trace, and small strong hooks baited with chicken

gut, heart, or liver. It is strange to say that crayfish tails do not seem to be the best bait so I presume they like a change. Large traps with conical entrances can also be used but monitors can sometimes chew through chicken wire if left too long in the traps. It is almost impossible to keep monitor lizards out of crayfish ponds as they can even climb vertical walls so the only way to get rid of them is to catch them.

Publications of Interest to Astacologists

Please note: IAA is not able to provide copies of these publications to members. Please use traditional Library services.

Appelberg, M. & T. Odelström. 1990. Kraftor i sura och kalkade vatten (crayfish in acidified and limed waters). (In Swedish). Inf Inst for Freshw Res, Drottningholm, Sweden.

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