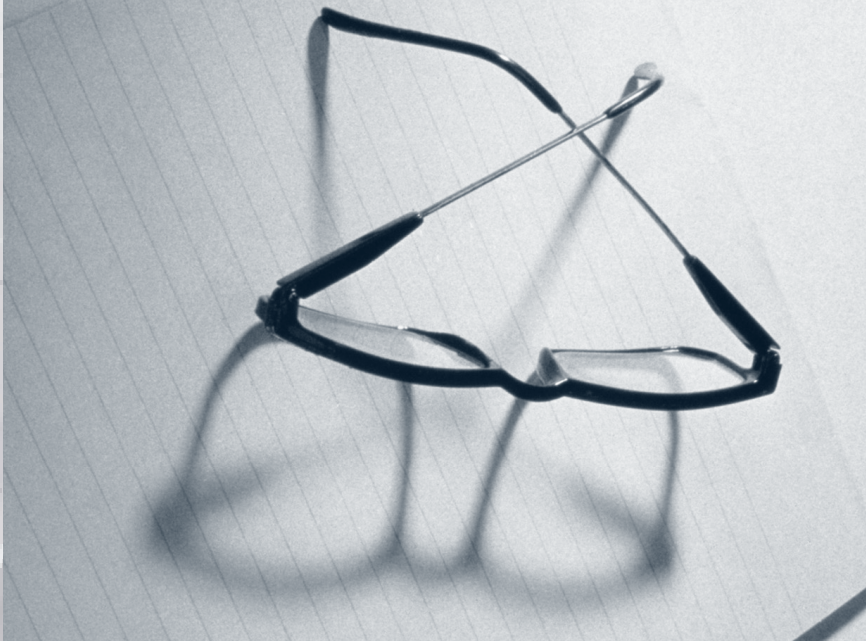




ERGONOMICS AUSTRALIA



December 2003



The Official Journal of the Ergonomics Society of Australia



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Editorial

The final issue for 2003 has involved the usual hassle of obtaining sufficient material in a timely fashion for a quarterly journal. Fortunately there is a small core of local ergonomists who have continued to keep this journal alive in tandem with overseas authors. The editor is, and the profession generally should be, very grateful for their efforts. Several papers have been promised for next year but between promises, delivery, editing, reviewing and finalizing there is many a slip between intent and performance – quite apart from a lengthy process before the material can be included in the manuscript sent to the publisher. We need an active journal representative in each state who will be responsible for motivating ergonomists to perform in this area – as well as members willing and able to share the task of sub-editing material for potential authors who have not had the opportunity to hone their academic literacy skills. It is no use saying *you* are too busy ... those who do commit to volunteer professional responsibilities are invariably the busiest people around. At present the credible public face of the ESA is dependent on one part-time employee and a group of professionals who must generate this volunteer time in addition to managing their own career. Too often this contribution may be unappreciated or under-valued. A professional journal is an indication of a discipline's intellectual robustness ... if members cannot perform in this department there is no excuse for complaints about lack of public recognition of ergonomics. A euphemistic name change for the society will not alter that basic reality if the general membership fails to cut the mustard.

Jenny Long has accepted the challenge to keep the new "What every ergonomist needs to know about ..." column alive with her interesting and informative item about vision and appropriate spectacles. Sadly the mooted article about a major back injury program is now unlikely to be completed in the foreseeable future. This is not only disappointing in itself, but doubly so since there is no longer an official archive of the past program details and results. Without individual records such as journal publications, much valuable historical information will be lost; so it is hoped that the issue can be re-visited at a later time.

The major article on fall arrest harnesses in the September issue of *Ergonomics Australia* was very timely as it coincided with a building fatality in NSW involving a sixteen year old apprentice in his first week of employment, who was not wearing a protective harness. Sadly the media was interested only in reporting the subsequent confrontations between unions, companies and state government (protests and strikes provide good pictures) without showing any understanding of the underlying issues so clearly described in the Zupanc

article. Calls to the industrial editors of two major papers regarding this article, were not returned. After speaking to Paul Davey, Media Relations Officer for the CFMEU in NSW, the editor has agreed to forward a copy of *Ergonomics Australia* for him to reproduce the article in early 2004 – with acknowledgements – in the CFMEU quarterly journal that is sent to some 30,000 members Australia-wide. Hopefully this will also alert a wider audience about the role of ergonomists in both research and practical applications. Please be on the lookout for any other organizations that would benefit from receiving our journal when a particular article is relevant to a public matter of concern.

Another of our journal authors has recently achieved noteworthy success as detailed in Noticeboard in this edition. It is a pleasure to welcome Catherine Cook to the ranks of ESA doctoral members ... she will receive the award of Doctor of Philosophy at University of Queensland on 19 December 2003.

The last two years and eight editions of the new-style *Ergonomics Australia* indicate a variety of concerns and contributors over that period. Therefore a special section has been included in this edition to collate that material under the heading *Two Year Review*. It gives an indication of the breadth of ergonomics applications. Special mention needs to be made of the solid support of Robin Burgess-Limerick who has not only handled the Internet application of the journal (EAOL) that our publisher forwards each quarter, but who has been a constant advocate for articles from among his students and contacts. He is a role model for other ergonomics academics in this regard!

This December edition comes with very best wishes for the coming festive season and encouragement for all ergonomists to share a growing value in the acknowledgement and publication of members' intellectual efforts for the advancement of ergonomics in this country.

Shann Gibbs PhD
Editor

CONFLICT RESOLUTION

Once upon a time, two brothers who lived on adjoining farms fell into conflict. It was the first serious rift in 40 years of farming side-by-side, sharing machinery and trading labour and goods as needed without a hitch.

Then the long collaboration fell apart.

It began with a small misunderstanding and it grew into a major difference and finally, it exploded into an exchange of bitter words followed by weeks of silence. One morning there was a knock on John's door. He opened it to find a man with a carpenter's toolbox.

"I'm looking for a few days' work," he said. "Perhaps you would have a few small jobs here and there I could help with? Could I help you?"

"Yes," said the older brother. "I do have a job for you. Look across the creek at that farm. That's my neighbour. In fact, it's my younger brother! Last week there was a meadow between us. He recently took his bulldozer to the river levee and now there is a creek between us. Well, he may have done this to spite me, but I'll do him one better. See that pile of lumber by the barn? I want you to build me a fence an 8-foot fence - so I won't need to see his place or his face anymore."

The carpenter said, "I think I understand the situation. Show me the nails and the post-hole digger and I'll be able to do a job that pleases you."

The older brother had to go to town, so he helped the carpenter get the materials ready and then he was off for the day. The carpenter worked hard all that day -- measuring, sawing and nailing. About sunset when the farmer returned, the carpenter had just finished his job. The farmer's eyes opened wide, his jaw dropped. There was no fence there at all. It was a bridge... a bridge that stretched from one side of the creek to the other! A fine piece of work, handrails and all! And the neighbour, his younger brother, was coming toward them, his hand outstretched... "You are quite a fellow to build this bridge after all I've said and done."

The two brothers stood at each end of the bridge, and then they met in the middle, taking each other's hand. They turned to see the carpenter hoist his toolbox onto his shoulder.

"No, wait! Stay a few days. I've a lot of other projects for you," said the older brother.

"I'd love to stay on," the carpenter said, "but I have many more bridges to build."

Author unknown

THE WORLD'S EASIEST QUIZ

- 1) How long did the Hundred Years War last?
- 2) Which country makes Panama hats?
- 3) From which animal do we get catgut?
- 4) In which month do Russians celebrate the October Revolution?
- 5) What is a camel's hair brush made of?
- 6) The Canary Islands in the Pacific are named after what animal?
- 7) What was King George VI's first name?
- 8) What colour is a purple finch?
- 9) Where are Chinese gooseberries from?
- 10) What is the colour of the black box in a commercial aeroplane?

All done?

Check your answers in Noticeboard

Letters

1. MALAYSIA

We have received proposals from over 25 countries around the world. We invite you to join us in mesmerizing Malaysia at the 7th International Conference on Work with Computing Systems, WWCS 2004, 29 June - 2 July 2004, to be held in Kuala Lumpur, Malaysia.

The final deadline to submit proposals for technical sessions, panel symposium, and tutorials is 15 December 2003. Submit an 800 word abstract, which will be peer reviewed. The website has been updated with more details, www.wwcs2004.org. Check the keynote addresses, tutorials and hotel accommodation.

Remember to delete your temporary Internet file in order to view the current WWCS homepage!

Send your proposals to contact@wwcs2004.org

Seasons' greetings from

*Halimahtun Khalid & Martin Helander
Co-Chairs WWCS 2004*

2. ECCE-12

12th European Conference on Cognitive Ergonomics Living and Working with Technology University of York, UK
12th 15th September 2004

ECCE-12 seeks to encourage dialogue among the diverse disciplines that contribute to the conference theme of 'Living and Working with Technology'. We invite contributions that examine psychological, social, cultural and design aspects related to this theme. Submissions in the form of papers, posters, and panels addressing theoretical, empirical, methodological and design issues around the theme of 'living with technology' are welcome.

ECCE-12 will be held immediately following the British HCI Conference in nearby Leeds. Important dates
Deadline for extended abstracts of full papers:
January 30th 2004

Poster abstract deadline: February 6th 2004

Panel abstract deadline: February 6th 2004

Notification to authors: April 2nd 2004

Final submission of papers
in camera-ready form: June 4th 2004

For an extended call and details of how to submit visit the ECCE-12 website: <http://www.ecce12.org.uk/>

3. THE 6TH ICOH INTERNATIONAL CONFERENCE ON OCCUPATIONAL HEALTH FOR HEALTH CARE WORKERS

The Challenges to new menaces KITAKYUSHU, JAPAN
Oct.8 (Fri.)-Oct.10 (Sun), 2004

It is a great honour and privilege for us to host the Sixth International Conference of Occupational Health for Health Care Workers (HCW) at UOEH, Japan. Our university has held an international symposium on occupational health every year since 1981. The 24th UOEH International Symposium will be held as a joint meeting with the OH for HCW.

We will focus on SARS in Asia and biochemical terrorism as emerging measures for health care workers. In addition the program will also cover a wide variety of topics such as violence, work environmental and musculoskeletal disorders etc. We are looking forward to your participation in and contribution to the conference and hope you will also take the opportunity to appreciate the natural beauty and culture of Japan during your visit.

Conference Secretariat

Dr. Kazuhiko Uchida, Dr. Yoshiyuki Hino,
Dr. Katsuya Furuki

University of Occupational and Environmental Health (UOEH), Japan Iseigaoka 1-1, Yahatanishi-ku, KITAKYUSHU, 807-8555, JAPAN

Phone: +81-93-691-7171 Fax: +81-93-603-2155

E-mail: icohhw@mbox.med.uoeh-u.ac.jp

URL: <http://www.hcw2004uoeh.jp/>

4. EARLY NOTICE

International Conference on Occupational Health

Milan Italy 11- 16 June 2006

This conference will celebrate the centenary of the International Commission on Health (ICOH) formerly the Permanent Commission on Occupational Health. It will be held in the city where it all started in 1906 and the Clinica dal Lavoro which was founded at much the same time is taking a central role in the organisation of the conference.

For more information as it comes to hand consult the ICOH website: www.icoh.org.sg

Presidents Column

Following almost a year of debate on the matter, members at the Annual General Meeting of the Society voted overwhelmingly for a name change. Rightly or wrongly it was believed that the word "ergonomics" on its own, did not reflect the true nature of the society, specifically the design and cognitive elements of our discipline. I am pleased to inform you we are now the **Human Factors and Ergonomics Society of Australia**. The Executive has undertaken to amend the Constitution accordingly. The name change brings us into line with the American Human Factors and Ergonomics Society. Post Nominals will remain the same until the Board discusses the issue at its next meeting.

A new member level of **SIG Affiliate** was created to provide for special interest groups wishing to join HF&ESA. This allows CHISIG and others to receive the *Code of Practice* when applying to join the Society; and the *Constitution* on becoming a member; it also allows the right to be part of a professional society as well as providing the right to advance (with appropriate qualifications) through the membership grades. I look forward to the day when we see SIG members becoming CPEs, Branch Chairpersons and maybe even, one day, President.

Another motion carried at the AGM was to separate the rules in the Administration Manual and form them into the By Laws. We are going to rename the Administration Manual and call it the **Procedures Manual** because it was believed to be much more than just an administration manual.

The HF&ESA Executive met last week with the CHISIG Executive and we had a full and frank discussion to plan the way ahead. It was decided that we should have a **Memorandum of Understanding** to help clarify where we stand and how we intend to progress issues. To that end, I drafted an MOU which was read to CHISIG members at their AGM and I have been told it was well received. We shall continue to consult with CHISIG on all matters and encourage their membership to advance through HF&ESA member levels.

The **39th Annual Conference Back to Basics** held recently in Brisbane at the University of Queensland, was well received by those attending as it provided delegates with a very friendly atmosphere and the time to catch up with old and new friends. The papers were excellent as were the posters. My congratulations go to the organizing committee for a job well done.

Finally, I'd like to wish everyone a happy and safe Christmas and holiday season with family and friends.

Margaret Head
President

IEA Column

BACKGROUND

The International Ergonomics Association (IEA) is like the United Nations for ergonomics. There are 42 countries and around 15,000 ergonomists as members.

Every 3 years an international congress is hosted and the Council meets for 2 days prior. Each country is allowed one delegate and the largest ones e.g. USA and UK are allowed 3 delegates. Australia is allowed 2 as we have over 500 members. I have officially been one of the Australian delegates for 3 years but unofficially attended Council meetings at various times since 1980 (starting with Norway whilst working in Sweden).

IEA BOARD

During the IEA Council meeting every 3 years a new Board is formed. Three positions are elected (President, General Secretary, and Treasurer). A further 4 positions are invited by the President. These are Chair of the main committees (a bit like Cabinet portfolios).

I have been invited to Chair the International Development Committee (IDC) from 2003-2006.

IDC RESPONSIBILITIES (DRAFT)

This Committee is given the responsibility to:-

1. Co-operate with international agencies such as ILO (International Labour Organisation), WHO (World Health Organisation), IOHA and more generally professional associations with which the IEA has signed formal agreements;
2. Negotiate with publishers of research materials to distribute educational materials online, or publications, to ergonomically developing countries; develop scheme for identification of these countries;
3. Develop support programs for developing countries to extend ergonomics education programs and promotions;
4. Promote workshops and training programs in developing countries through the supply of educational kits, and visiting ergonomists;
5. Extend regional ergonomics "networks" of countries to countries with no ergonomics programs located in their region;
6. Provide support to non IEA member countries considering application for affiliation to IEA. You can do this, but it is also the job of the Development Committee; and

7. Co-ordinate efforts of IEA Federated Members which develop specific links with ergonomically developing countries (e.g. SELF, NVvE).

TARGET AREAS FOR ERGONOMICS DEVELOPMENT

1. Latin America (Brazil, Chile, Mexico with potential support to Peru, Cuba, Bolivia, Colombia, Venezuela).
2. Asia (Indonesia (with support from NVvE), Philippines, Thailand, Singapore, Malaysia with potential support to Vietnam, Cambodia, East Timor, Papua New Guinea).
3. North Africa (French speaking countries e.g. Morocco, with support from SELF).
4. South Africa, Central / Saharan Africa.
5. Central Asia (India)
6. Eastern Europe

IDC COMMITTEE MEMBERS

IEA Members with involvement in achieving these goals are based in:-

- Malaysia, Singapore
- Brazil, Chile, Mexico
- France
- Netherlands
- South Africa
- Sweden
- India
- USA, Canada
- UK
- Plus, Chair, Australia

PROGRESS

The first major project to be undertaken is with the ILO (International Labour Organisation). They have provided funding to the IEA to develop a briefing document on ergonomics with particular focus on MSD. We have contracted Latrobe University to conduct the work which is to be submitted to ILO Geneva by 5th December.

I will be attending an Executive Council meeting in Rome, Italy on the 15th / 16th November, to present an Action Plan. Once our Action Plan is ratified, I can provide further details.

If any ESA members are interested in assisting in any way, I would appreciate an email. Already I have a couple of members willing to be in a support team, but any offers are welcome as there is so much we could achieve.

Regards,

David C Caple
IDC Chair

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- ▶ Graduate Diploma in Ergonomics
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For more information contact Robin Burgess-Limerick, telephone (07) 3365-4718, email robin@hms.uq.edu.au or visit the UQ Ergonomics website www.ergonomics.uq.edu.au



THE UNIVERSITY
OF QUEENSLAND

WORLD CLASS: BE PART OF IT

New Members

OCTOBER 2003

Name	State	Grade	Upgrade
Christine Zupanc	QLD	A	No
Heidi Brandis	WA	M	No
Andy Tascione	SA	M	No
Gary Dennis	QLD	M	No
Colin Stear	VIC	M	No
Peter Maher	NSW	M	No
Wendy Morton	NSW	A	No
Rebecca Wolfgang	NSW	A	No
Lee Davids	NSW	M	No

NOVEMBER 2003

Name	State	Grade	Upgrade
Louise Ann Coubrough	WA	M	No
Robert Fogg	NSW	M	No
Mary Richardson	NSW	A	No
Leone Leyshon	ACT	A	No

Correction:

In the September 2003 edition of *Ergonomics Australia* Eva Honeyman and Jane Hay were listed as CPEs when in fact Eva Honeyman has been admitted as a Member; and Jane Hay as an Affiliate.

Noticeboard

1. THE 2003 IGNOBEL PRIZE WINNERS

[Ed: The underlined items were links in the emailed information; copy a link to go direct to the sites from your web browser.]

The 2003 Ig Nobel Prize winners were announced on Thursday evening, October 2, at the 13th First Annual Ig Nobel Prize Ceremony, at Harvard's Sanders Theatre. [Click here for details](#). The ceremony was telecast live on the Internet ([click here to watch an archived videocast](#)).

PHYSICS

Jack Harvey, John Culvenor, Warren Payne, Steve Cowley, Michael Lawrance, David Stuart, and Robyn Williams of Australia, for their irresistible report "An Analysis of the Forces Required to Drag Sheep over Various Surfaces."

[PUBLISHED IN: Applied Ergonomics, vol. 33, no. 6, November 2002, pp. 523-31. A copy is available at <http://www.culvenor.com/>]

Owen Evans

2. DR CATHERINE COOK

Congratulations to Catherine Cook who will be admitted by the Council of the University of Queensland to the degree of Doctor of Philosophy on 19th December 2003.

Cathy's doctoral thesis was titled "Preventing musculoskeletal discomfort associated with computer use: Consequences of forearm support and mouse use".

She now joins the club of women who understand the complexity entailed in being a woman with a husband, family and career as background demands to higher tertiary study! Welcome to the club, Cathy ... the result makes all the dramas worthwhile in the end!!! We also recognise the need to congratulate our background teams (including supervisors!) who shared the prolonged, sometimes agonizing process, and the joy of eventual success. In Cathy's case an immediate gratification will come with her promotion to Senior Lecturer in Occupational Therapy, School of Exercise and Health Sciences at the University of Western Sydney at the start of 2004.

The doctoral membership of the ESA is growing apace and offers a great support network.

Shann Gibbs

3. ERGONOMICS FOR CHILDREN IN EDUCATIONAL ENVIRONMENTS (ECEE)

The International Ergonomics Association (IEA) recently formed a new Technical Committee Ergonomics for Children in Educational Environments (ECEE) (web page ergonomics4children.org), which organised four sessions of 17 papers at the recent IEA Triennial Congress in Seoul (24-29 August 2003). One of the keynote lectures was on computer use by school students. The New Zealand Ergonomics Society has an *Ergonomics for Schools Special Interest Group*, and the UK Ergonomics Society has a similar group that has developed the web page (ergonomics4schools). There is clearly a great deal of interest and relevant research in this area.

All topics relating to ergonomics and schools will be considered for a Special edition of *Ergonomics*. All papers must include original material and will be refereed.

Professor Stephen Legg

Email: S.J.Legg@massey.ac.nz

[Ed: Deadline for submissions being 30 November 2003 this was too late for potential authors to receive notification via the December edition of *Ergonomics Australia* but interested members are advised to keep a lookout for further information about this special edition that is likely to be posted online and will be provided in EA when notified.]

4. ESA PHOTOGRAPHIC COMPETITION

ESA President Margaret Head has forwarded a notification of an initiative to support a photographic competition among members in 2004. "Please see page 10 for the full page announcement."

5. ANSWERS TO THE QUIZ

1) How long did the Hundred Years War last?

*116 years

2) Which country makes Panama hats?

*Ecuador

3) From which animal do we get cat gut?

*Sheep and Horses

4) In which month do Russians celebrate the October Revolution?

*November

5) What is a camel's hair brush made of?

*Squirrel fur

6) The Canary Islands in the Pacific are named after what animal?

*Dogs

7) What was King George VI's first name?

*Albert

8) What colour is a purple finch?

*Crimson

9) Where are Chinese gooseberries from?

*New Zealand

10) What is the colour of the black box in a commercial aeroplane?

*Orange, of course.

What do you mean you failed?

So much for my brilliant friends!

[Sent to the editor by a librarian colleague]

The Ergonomics Society of Australia Inc.

INAUGURAL PHOTOGRAPHIC COMPETITION 2004

People at Work

Entry to the competition is open to all membership grades of ESA



Entry fee is \$35.00 per photograph (to help with the cost of framing)

To be accepted, photos must be taken on 35mm film; or taken with a digital camera greater than 3.5 mega pixels. Entries submitted must measure 200mm x 300m

Entries must be received by the Secretariat no later than Friday, 8 October 2004

Winners will be announced at the ESA Conference Dinner in Cairns

The Judges decision is final

Entries remain the property of ESA and will be exhibited throughout 2005 on request of Branches.

What Every Ergonomics Needs to Know about...

MULTIPLE FOCUS SPECTACLES

Jennifer Long B.Optom (Hons) M.Safety Sc.
School of Optometry and Vision Science, UNSW

Like it or not, spectacles become a part of life for most of us sometime between the age of 35 and 50. The most common reason for this is a condition called presbyopia. In presbyopia, the crystalline lens inside our eye becomes less flexible and will not change focus for objects in our near vision. This makes it difficult for us to see to read.

The current trend within the ophthalmic industry is to fit general purpose progressive spectacle lenses to people who have presbyopia. Many readers may already own a pair themselves. These spectacle lenses are slowly superseding half-eyes (or look over spectacles), bifocals and trifocals. They promise more versatility (in the car, you can see in the distance, see the dashboard and read the street directory all with the one pair of spectacles), offer better aesthetics (they look like regular spectacles, not like bifocals) and obviate the catchcry "Has anyone seen my reading glasses?"

Despite the many advantages these lenses have over other spectacle lenses, they are not necessarily the panacea for presbyopia many marketers would have us believe. Who hasn't seen the 50-something-year-old office worker with their head tipped back and chin thrust forward struggling to see their computer screen, wearing their "one-pair-for-everything" progressive spectacles?

While general purpose progressive lenses offer the convenience of one pair of spectacles, there are work situations where their use may impact on the health, comfort and efficiency of the wearer. This article will outline some of the alternative task-specific multiple focus spectacle lenses currently available and discuss how you can help your clients with presbyopia obtain the best spectacle lens for their job.

FEATURES OF MULTIPLE FOCUS SPECTACLES

Multiple focus spectacles, as the name implies, contain more than one refractive (or prescription) power, enabling the presbyopic wearer to focus at more than one distance. For example, a bifocal has two refractive powers allowing the wearer to see in the distance as well as see up close. The term "multifocal spectacles" refers to bifocals, trifocals and progressive lenses.

Multiple focus spectacle lenses are prescribed and ordered by specifying three parameters:

1. The refractive power in the lens.
2. The position of the refractive power in the lens relative to the wearer's eye.

3. The width (or field of view) of the viewing area, which is dependent on lens design.

HOW DO GENERAL PURPOSE PROGRESSIVE LENSES WORK?

General purpose progressive lenses have refractive power which "progresses" or gradually changes over the surface of the lens. There is a distance and a near refractive power. Linking these two areas is a channel which allows the wearer to also focus at a range of intermediate distances (see Figure 1).



Figure 1. General purpose progressive lenses

There are many lens designs offering variety in the length of the intermediate channel and in the width of the distance, intermediate and reading areas. However, they are all similar in that:

- The lenses need to be precisely fitted otherwise the wearer may experience distorted areas in their peripheral field of vision.
- The reading prescription is always in the lower portion of the lens.

These lenses may be suitable for a range of "general-purpose" tasks such as reading books and newspapers, shopping and driving. However, if the near task is positioned high in the wearer's field of view (e.g. if looking at a computer monitor) or if the wearer needs to see a near task displayed over a relatively large surface area (e.g. working at a large desk), alternative spectacle lens designs may be required.

ALTERNATIVE TASK-SPECIFIC LENSES

Extended focus progressive lenses

Extended focus progressive lenses were launched in the ophthalmic lens market approximately 13 years ago as a lens suitable for computer users. The principal feature of these lenses is that the intermediate portion is wider and higher than that of a general purpose progressive (see figure 2). This means that the wearer is able to adopt a more neutral posture at their desk and does not need to tip their head back to see the computer monitor. They have received favourable reviews in the scientific literature^{1,2} and are generally well accepted by wearers.

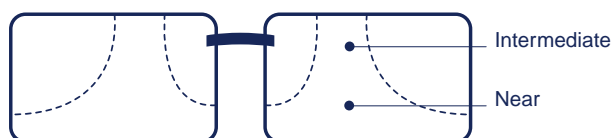


Figure 2. Extended focus progressive lenses

The main disadvantage of these lenses (as for most task-specific lenses) is that they usually don't give clear distance vision, so aren't suitable for driving. Therefore, the wearer may need to own more than one pair of spectacles, for example, general purpose progressives for everyday use and extended focus progressives for office work.

Bifocal lenses

In some work settings bifocals can offer more versatility than a progressive lens. They have two refractive powers (see figure 3). The area indicated as "focus 2" is referred to as "the segment".



Figure 3. Bifocal lenses

The most common arrangement in a bifocal is for the top portion of the lens (focus 1) to be used for distance viewing and the bottom portion (focus 2) for near viewing. However, it is possible to specify almost any focal arrangement depending on the working distance of the task. For example,

- Focus 1 = 70cm viewing distance; Focus 2 = 40cm viewing distance
- Focus 1 = distance viewing; Focus 2 = 1 metre viewing distance.

Bifocal lenses have two principle advantages over progressive lenses.

1. The segment height can be varied to suit the task.
 - Figure 4a shows the conventional position of the segment, which is aligned with the wearer's lower eyelid. This would be suitable for general reading tasks.
 - Figure 4b shows the near segment set in a low position e.g. for a golfer who needs maximum distance viewing but who occasionally needs to complete a scorecard.
 - Figure 4c shows the near segment set in a high position e.g. for an orchestral musician who predominantly needs to see their music, but also has to see the conductor.

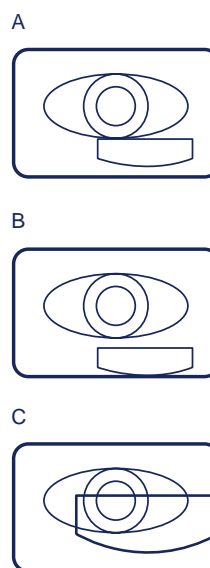


Figure 4. Fitting position of bifocal segments in a spectacle frame

2. The size of the viewing area can be varied to suit the task.
 - Figure 5a shows a standard D-segment which would be suitable for general reading tasks.
 - Figure 5b shows an executive bifocal which some people prefer when viewing tasks covering a large surface area (e.g. reading architectural plans).

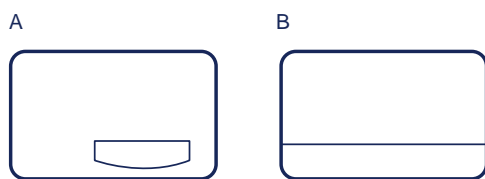


Figure 5 (a) D-seg bifocal (b) Executive bifocal

Trifocal lenses

This literally means “three focus” (see figure 6). The conventional arrangement of a trifocal is that the top portion is used for distance viewing; focus 2 for viewing at an intermediate distance (e.g. 1 metre away); and focus 3 for near viewing. As for a bifocal, the main advantage of trifocal lenses is that it is possible to specify the refractive power, the position of the segment and the size of the segment according to the task demand.



Figure 6. Trifocal lenses

Trifocals have their limitations. The size of the segment area is quite large and some wearers feel that this intrudes on their field of view. Despite this, the intermediate zone is fairly shallow (7mm high) and does not allow a great deal of room for reading. One manufacturer has addressed the issue of intermediate zone size by marketing an occupational trifocal for computer users (Datalite™ CRT trifocal). This lens has an intermediate zone depth of 14mm high to allow comfortable viewing of a computer monitor³. However, the size of the segment does limit distance viewing and so these lenses are not suitable for tasks like driving.

BUT WHAT IF THE NEAR TASK IS ABOVE THE HEAD?

There are many situations when a near task is performed above the head. For example: a mechanic working under a car; an electrician working on overhead wires; a librarian selecting or shelving books on an overhead shelf.

One alternative is for a bifocal to be fitted up-side down (where focus 1 is set for, say, distance viewing and focus 2 for the working distance of the near task – see Figure 7). For people who need to view a near task “up” as well as “down”, an occupational trifocal might be prescribed – see figure 8, where focus 1 is set for distance viewing and focus 2 and 3 for the working distances of the near tasks.

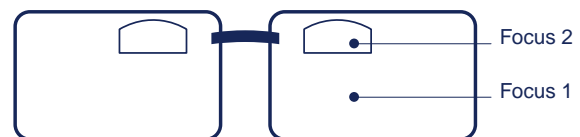


Figure 7. “Upside-down” bifocal



Figure 8. Occupational trifocal

GETTING THE RIGHT LENS FOR THE JOB

The information ergonomists obtain in workplaces may not always be accurately conveyed to eye care practitioners, especially when communication is via the patient/client. This can result in the prescription of inappropriate spectacles for certain tasks. The best way for ergonomists to ensure that their clients are prescribed appropriate eyewear is to:

- Develop a working relationship with an eye care practitioner. A collaborative approach to problem solving is more likely to be fruitful if each party appreciates the problem from the other’s point of view. Understanding the reasoning by which eye care practitioners prescribe particular lenses will assist this process.
- Help the eye care practitioner understand the work situation. This might be achieved by:

- Drawing a diagram of the work task, identifying the working distances and relative position of the tasks
- Indicating the size of detail in tasks
- Describing the length of time spent on specific tasks
- Explain to workers that there are situations where it is advantageous to have task specific spectacles and that it may be necessary to have a pair of spectacles specifically for work.

CONCLUSION

General purpose progressive lenses are useful in many work situations as they allow the wearer to see at a range of distances with the one pair of spectacles. However, they are not the ideal lens option for all work tasks and it is possible that some workers may require task-specific spectacles in addition to their regular eyewear.

One of the greatest challenges facing eye care practitioners and ergonomists is persuading their clients to wear task specific spectacles. Ergonomists are familiar with their clients specific work tasks, and so are in an ideal position for working with eye care practitioners in determining the best type of spectacles for the job.

REFERENCES

1. Krefman R.A. (1991) A comparative evaluation of Readables[®] to single vision lenses. *Journal of the American Optometric Association* 62(9): 676-679
2. Bachman W.G. (1992) Computer-specific spectacle lens design preference for presbyopic operators. *Journal of Occupational Medicine* 34(10): 1023-1027
3. Butzon S.P., Eagels S.R. (1997) Prescribing for the moderate to advanced ametropic presbyopic VDT user: a comparison of the Technica[®] Progressive and the Datalite[™] CRT Trifocal. *Journal of the American Optometric Association* 68(8): 495-502



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This is a course for people who wish to develop their knowledge and skills of ergonomics in the workplace, with the objectives of reducing injuries by identifying and controlling the associated risk factors as well as improving productivity and work satisfaction.

The content of the course reflects contemporary issues in ergonomics including practical aspects such as workplace dimensioning, working posture, illumination, hazard management, manual handling, hand held tools, etc. These are presented via short lectures and real life hands-on exercises. Background topics including common industrial injuries and their causes are provided so that the participants understand the nature of the problems with which they are dealing.

The course is a practical one with a strong emphasis on developing useful skills in workplace assessment and improvement. Participants carry out workplace investigations in different work settings and also undertake a self directed project with assistance from ergonomic practitioners. The course is presented by practising ergonomists using methods which reflect the expectations and requirements of the adult learner.

The course is applicable to anyone who needs a basic practical qualification in injury management and industrial ergonomics for immediate application and future career development. The course is offered over three, one-week modules:

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Book Review

INTRODUCTION TO ERGONOMICS

R S BRIDGER

2nd Edition, Taylor & Francis

This 2003 edition is an update on the original edition published in 1995 by McGraw-Hill Inc. In the preface the author states that he has attempted to “update the scientific content of the book to reflect the state of our knowledge at the beginning of the twenty-first century” as well as continuing to offer a basic introduction to the science of ergonomics. In addition Bridger has added new material at the end of each chapter to answer the three questions: *Can it work? Does it work? Is it worth it?*

There are sixteen chapters covering the range of interactions that require an overall appreciation. Clearly ergonomists will eventually prefer to concentrate on the particular area that most closely relates to their own field of practice. The book is a very useful tool at any level of a given practitioner’s knowledge, but it is primarily intended as a textbook for students – even while providing a ready reference for practising ergonomists. The chapter contents are clearly enunciated and provide a logical intellectual development of ideas that are summarized at the end of each chapter ... which then concludes with suggestions for essays and exercises. The text is liberally illustrated with charts, graphs, tables, drawings and photographs that clarify the practicalities of the various issues being explained.

In his introduction, the author uses a simple line drawing to explain his “tent analogy” whereby the human skeleton is regarded as the tent pole, the muscles as the guy ropes and the soft tissue as the canvas. This section then proceeds to relate the various academic concerns that need to be addressed by an ergonomist in understanding and improving human interactions with their environment. Over the next fifteen chapters Bridger develops the necessary knowledge structures that will enable an ergonomist to provide an informed argument rather than merely a subjective opinion about workplace conditions. This book focuses on the workplace rather than domestic or leisure activities although much of the information could be readily adapted to those areas as well.

The material is assembled under the following chapter titles:

- Anatomy, posture and body mechanics
- Anthropometric principles in workplaces and equipment design
- Static work: Design for standing and seated workers
- Design of repetitive tasks
- Design of manual handling tasks
- Work capacity, stress and fatigue
- Industrial applications of physiology
- Heat, cold and the design of the physical environment
- Vision, light and lighting
- Hearing, sound, noise and vibration
- Human information processing, skill and performance
- Displays, controls, and virtual environments
- Human-computer interaction, memory and language
- Human-machine interaction, human error and safety
- System design: organisational and social aspects

It then offers a list of books and journals for “further reading in and around ergonomics”; plus 32 pages of references and a comprehensive 6 page Index.

Bridger’s style is very approachable and makes for easy reading of at times complex material. While the content is intended as an overview of the range of issues that must be addressed by ergonomists, there is no sense of it being presented in a facile or superficial manner. There is plenty of detail that addresses issues which are frequently raised on the various Internet ergonomics discussion boards. He regularly relates the particular matters under investigation to their perceived cost benefit provision for individuals and for the workplace and social outcomes of successful ergonomics intervention. This is especially notable in the final chapter where he discusses the determination of target levels of risk in system design and how their resultant organisational and social aspects mesh with legislative and organisational aspects of safety. While the legislative data relate to USA and European Union detail, it is not difficult correlate this with the Australian scene.

Finally, it needs to be remembered that this is primarily intended as a text book for use by students and teachers. An instructor's manual is free to academics adopting the book and provides comprehensive answers to questions set at the end of each chapter, as well as providing guidance on teaching and assessment. For those who believe in lifelong learning and appreciate the value of iterative reinforcement for providing new insights, this is definitely a desirable addition to their bookshelf. It will prove extremely useful for any practitioner seeking to determine:

Can it work? Does it work? And is it worth it?

Dr Robert S Bridger is currently Head of Human Factors at the Institute of Naval Medicine, Hampshire, UK. He is also visiting Professor at the Department of Human Work Sciences at the University of Lulea, Sweden and Specialist in Human Factors at the University of Leeds. He is an external examiner for the Heriot-Watt University.

This copy of *Introduction to Ergonomics* was generously provided for review by Taylor & Francis UK. The advice on the flysheet states:

For price availability and ordering visit our website www.ergonomicsarena.com

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Reviewed by:

*Shirleyann M Gibbs
Safety Scientist & Ergonomist*



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TWO YEAR REVIEW

EDITION	AUTHOR	TITLE	CATEGORY
V16,N1,2002	SM Gibbs	Safety is a Fuzzy word (health systems & cytotoxic drugs)	Complexity Research article
V16,N2,2002	M Oxenburgh	Ergonomics, Economics & Ethics	Ron Cumming Memorial Lecture
	JC Vélez-Zape EC Montoya-Restrepo CE Oliveeros-Tascón	Human Factors Performance in Coffee Harvesting in Columbia	Primary industry Field research article
	T Mitchell	Aquaculture and Ergonomics Issues and Opportunities	Fishing industry Case study
	V Blewett	Possible ESA name change	Forum
	SM Gibbs, D Brown et al	Ergonomics & Ethics in the New Millennium	Forum
	M Dohrmann	Recertification & marketing of PAB	Forum
V16,N3,2002	IEA	Standards for Accreditation of Ergonomics Education Programs at Tertiary (University) Level	IEA Guidelines
	DC Caple	Ergonomists in East Timor	Report
	DC Caple	Honours & Awards Committee	Report
	DR Smith, R Atkinson et al	A comparison of musculoskeletal disorders among female nursing home nurses in Japan & Korea	MSD Research article
	D Brown	Ergonomics in a subjective world	Stress m'ment article
	T Upsdell M Hely	Possible ESA name change Ditto	Forum
V16,N 4,2002	A Thatcher	Cyberg 2002 Conference	Report
	SM Gibbs	ACCS Forum on re-use of invasive medical devices	Report
	M Hely	Exercise Ergonomics ... when things are grim in the gym!	Exercise Safety article
	SM Gibbs	Relative values	Forum
	A & D Matfin M Hely C Worringham	Benefits or otherwise of stretching exercises? Stretching ... the truth Stretching debate	Forum
V17,N1,2003	Y Toft	Indonesian Physiological Society Congress – Bali	Congress Report
	M Hely	Exercise ergonomics ... when things are grim in the gym!	Reprinted article [Printer Corrections]
	C Cook R Burgess-Limerick	Guidelines for computer workstations	Office work Research article
V17,N2,2003	D Allert	Past Present and Future Design concepts for a prosthetic foot	Anatomical design Research article
	D Brown	What every ergonomist needs to know about flicker	Advice Column
	NL Adams	Report from the Professional Affairs Board	PAB Report
V17,N3,2003	J Priebe	What every ergonomist needs to know about... Task Frequency Scales	Advice Column
	DR Smith PA Leggat et al	Musculoskeletal disorders among female Australian nurses working in a unique tropical environment: results from a pilot study	MSD Research article
	C Zupanc R Burgess-Limerick	Issues related to the wearing of fall-arrest harnesses in the construction industry	Construction industry Research article
	DC Caple R Hall	Possible ESA name change ditto	Forum
	J Talbot J Long D Brown	A defining moment in ergonomics Ditto Ditto	Forum
	SM Gibbs	<i>Safety by Design</i> , M G Stevenson (2003)	Book Review
V17,N4,2003	J Long	What every ergonomist needs to know about ... multiple focus spectacles	Advice Column
	SM Gibbs	<i>Introduction to Ergonomics</i> , RS Bridger (2003)	Book Review

Conference Calendar

2004

19–22 May 2004 – Occupational Ergonomics and Safety Conference 2004

XV111 Annual International Conference of the International Society for Occupational Ergonomics and Safety

Houston, Texas, USA

Contact: OESC Conference Chair

E206-D3 Engineering Building 2

University of Houston

Houston, TX 77204-4008, USA

29 June – 2 July 2004 – WWCS 2004

7th International Conference on Work with Computing Systems

Kuching, Sarawak, Malaysia

Internet: www.wwcs2004.org

Email: mahtun@wwcs2004.org

11–15 July 2004 – Premus 2004

5th International Scientific Conference on Prevention of Work related Musculoskeletal Disorders

Zurich, Switzerland

Internet: www.premus2004.ethz.ch

8–13 August 2004 – ICP2004

28th International Congress of Psychology

Beijing, China

Internet: www.icp2004.org

23–25 August 2004 – Ergonomics for a BIZ-e World

40th Conference of Ergonomics Society of Australia & 7th Conference of Pan Pacific Council on Occupational Ergonomics

Cairns, Queensland, Australia

Email: secretariat@ergonomics.org.au

12–15 September 2004 – ECCE

12th European Conference on Cognitive Ergonomics Living and Working with Technology

University of York, UK

12th 15th September 2004

ECCE-12 will be held immediately following the British HCI Conference in nearby Leeds. Important dates

Deadline for extended

abstracts of full papers: January 30th 2004

Poster abstract deadline: February 6th 2004

Panel abstract deadline: February 6th 2004

Notification to authors: April 2nd 2004

Final submission of papers

in camera-ready form: June 4th 2004

For an extended call and details of how to submit visit the ECCE-12 website: <http://www.ecce12.org.uk/>

8–10 October 2004

6th ICOH International Conference on Occupational Health for Health Care Workers

KITAKYUSHU, JAPAN

Conference Secretariat

Dr. Kazuhiko Uchida, Dr. Yoshiyuki Hino,

Dr. Katsuya Furuki

University of Occupational and Environmental Health (UOEH), Japan

Iseigaoka 1-1, Yahatanishi-ku, KITAKYUSHU, 807-8555, JAPAN

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E-mail: icohhw@mbbox.med.uoeh-u.ac.jp

URL: <http://www.hcw2004uoeh.jp/>

2005

24–27 May 2005 – Gerontechnology 2005

The International Society for Gerontechnology Nagoya, Japan

22–27 July 2005 – HCI International 2005

11th International Conference on Human-Computer Interaction

Caesar's Palace, Las Vegas, USA

Internet: www.hcii2005.engr.wisc.edu

1–30 September 2005 – Cyberg 2005

Fourth International Cyberspace Conference on Ergonomics

Internet: www.cyberg.wits.ac.za

2006

11–16 June 2006 – ICOH

International Conference on Occupational Health Milan Italy

For more information as it comes to hand consult the ICOH website: www.icoh.org.sg

10 – 14 July 2006, IEA 16th Triennial Congress – Meeting Diversity in Ergonomics

MECC Congress Centre, Maastricht, The Netherlands

Contact: Ernst AP Koningsveld

Congress Chairman

E: nvve@planet.nl

2007

21–24 May 2007 – WWCS2007

Work with Computer Systems – Computer systems for human benefits

Stockholm, Sweden

Internet: www.wwcs2007.se

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March edition	February 1
June edition	May 1
September edition	August 1
December edition	November 1

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Contributions to *Ergonomics Australia* are always welcomed and encouraged.

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Graphics (photos, illustrations, drawings, computer graphics etc) are particularly welcome and should be camera ready. Photos need not be black and white and negatives are not required. Digital photos are generally unsuitable for good publishing reproduction and 35 mm photos are scanned using the publisher's high technology equipment to produce a better result for publication.

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Any inquiries about contributions should be directed in the first instance to the Editor.

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