



ROLE OF AYURVEDA IN NATIONAL BLINDNESS CONTROL PROGRAM AND VISUAL IMPAIRMENT

Dr Aishwarya K¹, Dr Sandhya Rani D², Dr Swathy S³

1,3 1st Year PG Scholar, Department of PG Studies in Shalakya Tantra, JSSAMC, Mysuru; 2 Associate Professor,
Department of PG Studies in Shalakya Tantra, JSSAMC, Mysuru

ABSTRACT

National Programme for Control of Blindness & Visual Impairment (NPCBVI) was launched in the year 1976 as a 100% Centrally Sponsored scheme with the goal to reduce the prevalence of blindness. Aims of NPCBVI mainly include, “To reduce the backlog of avoidable blindness through identification and treatment of curable blind at primary, secondary and tertiary levels” and the leading cause of blindness include **Cataract, Refractive Error, Corneal Blindness, Glaucoma, Surgical Complication, Posterior Capsular Opacification, Posterior Segment Disorder**, and Others.

About 85% of these causes are preventable (Preventable Blindness), and this can be efficiently achieved by following certain measures in *Ayurveda* like *Dinacharya*, *Chakshushya Rasayana*, *Achara Rasayana*, *Kriyakalpa*, *Kaya Shodhana* which helps in maintaining the healthy state of the eyes and prevent diseases in the eye – “*Swastha Paripalana*”. Some of the causes of blindness are also curable, provided it is treated at the right time (Curable Blindness) delay in treatment for visual impairment causes complications, sometimes resulting in irreversible loss of vision. Basic principles of *Ayurveda* are helpful here for the management. *Ayurveda* management aims on avoiding ageing effects in eye, treating the disease and improve function of eye – “*Vikara Prashamana*”.

Thus, this Paper aims to highlight an Integrative approach to be incorporated in the National programme so as to mark a milestone in the “Eye Health for all” campaign of the government.

Keywords: Ayurveda, Blindness Control, Prevention, Swasthya, Chakshushya.

INTRODUCTION:

Vision is an invaluable asset to humanity. Worldwide, there are 285 million individuals facing visual disabilities, with 39 million experiencing blindness¹, including 15 million in India alone². The global impact of visual impairment is not evenly spread, with developing nations bearing the brunt of this challenge. Moreover, there is a distinct inequality observed in terms of age and gender, as those aged 50 and above, particularly females, encounter a significantly elevated risk of experiencing visual impairments³.

The main aim of NPCB&VI is to prevent visual impairment, strengthen the strategy for eye health and reduce the prevalence of blindness from 1.4% to 0.3% in India⁴. About 85% of total blindness is avoidable which includes both preventable and curable blindness⁵. Preventable blindness is tackled by vitamin supplementation and keeping systemic diseases at check, whereas curable blindness is treated with subduing causative factors at appropriate time. Apart from vitamin supplementation modern science, does not offer a wide spectrum of options pertaining to the preventive aspect of eye health and maintaining its well being. In *Ayurveda*, following *Dinacharya*, consuming *Chakshushya Ahara*, undergoing *Kriyakalpa* and *Ritu Shodhana* gives nourishment to the eyes, maintain its healthy state and treats any derangement in the organ. *Dinacharya* serves as a guide for lifestyle practices, encompassing dietary habits, daily routines, exercise, and yoga. *Netra Kriyakalpa* is a *Bahiparimarjana Chikitsa* for the eyes, presenting numerous advantages compared to oral administration. Hence this study is done to emphasize the role of *Ayurveda* in NPCB&VI, which plays a major part in achieving the aims and objective of this centrally funded programme.

OBJECTIVES:

1. To highlight the role of *Ayurveda* in preventing blindness and visual impairment.
2. To put forward an integrative approach in order to achieve the aims and targets of NBCP&VI.

METHODOLOGY:

Literary Source: Literary data will be collected from *Ayurveda* classical textbooks, text book of modern medical science, reputed journals and studies conducted on related works, internet and other sources.

DISCUSSION:

India is the first country to launch a national programme for control of blindness in 1976 as a 100% centrally sponsored programme. A large number of blind people in the country denote poor socio-economic development and an inefficient eye care services in the country. There are 39 million blind people in the world of which 15 million blind people are from India. According to NPCB Blindness is defined as – **“Inability of a person to count fingers from a distance of 6m or 2 ft or vision 6/60 or less with best possible spectacle correction. Diminution of field of vision 20° or less in better eye”**⁶.

CAUSES OF BLINDNESS⁷:**Table 1 Causes of blindness in India**

CAUSES OF BLINDNESS	INDIA VISION <6/60 CRITERIA
Cataract	62.6%
Refractive Errors	19.7%
Glaucoma	5.8%
Corneal Opacity	0.9%
Trachoma	0%
Posterior segment diseases: ARMD, DR	4.7%
Posterior Capsule Opacification	0.9%
Surgical Complications	1.2%
Miscellaneous	4.5%

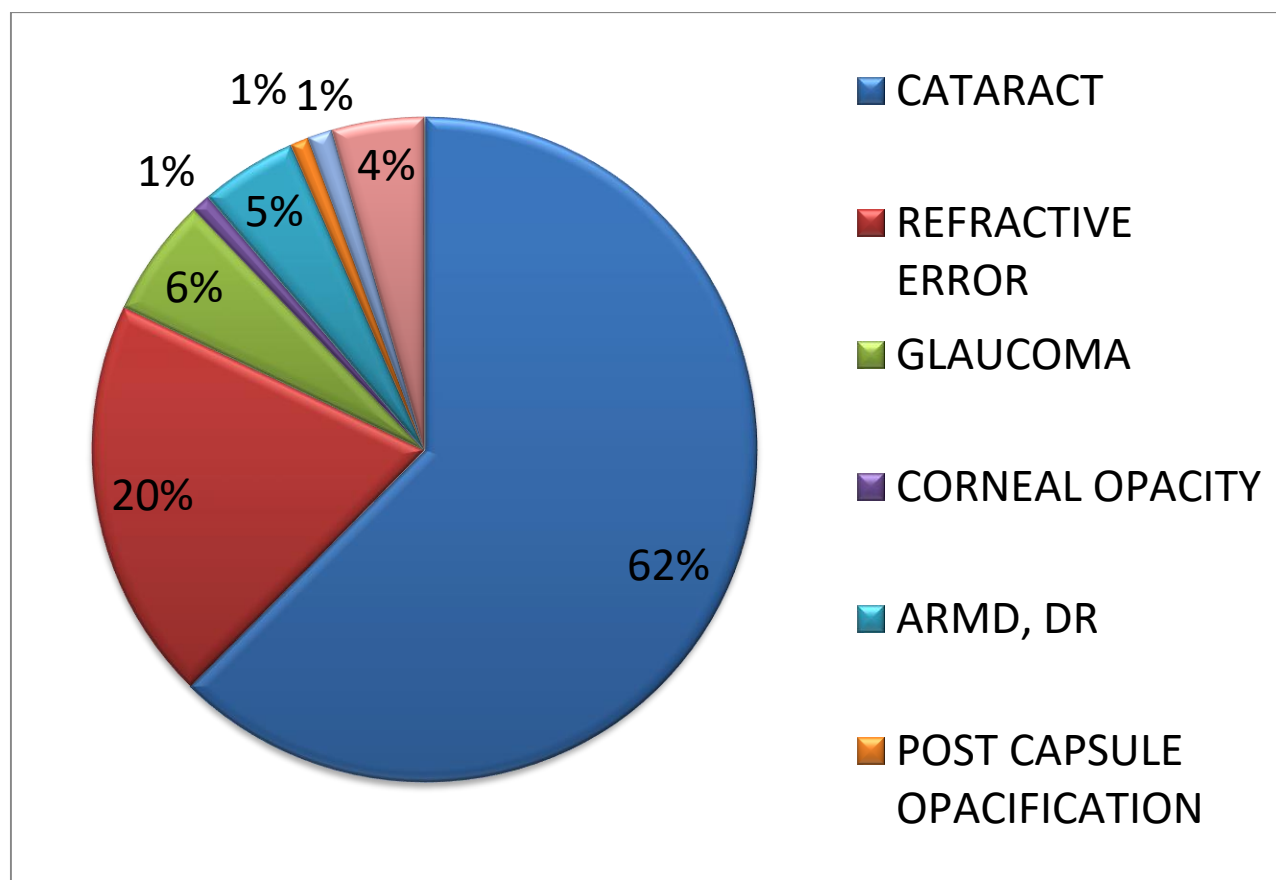


Figure 1: Causes of Blindness in India as per <6/60 criteria

LACUNAS FACED BY THE NBCPVI AND THEIR ADEQUACIES:

The major insufficiency faced currently in NPCB is the deficit of methods to prevent the above said causes of blindness and maintain the healthy state of eye.

In contrast, *Ayurveda* mainly focuses on “*Swasthasya Swastha Rakshanam*”. An entire modality of treatment called *Netra Kriya Kalpa* and a complete list of drugs exclusively for the wellbeing of eyes called *Chakshushya Dravyas* is dedicated to the *Swastha Paripalana* and *Vikara Prashamana* of the eye.

PREVENTION OF BLINDNESS AND MANAGEMENT OF VISUAL IMPAIRMENT:

Prevention of any disease is done by following *Dinacharya*⁸ which includes the following steps:

1. *Netra Prakshalana*:
The use of *Triphala kashaya* in *Netra prakshalana* contributes to maintaining corneal transparency and the organized structure of collagen fibers within the corneal stroma. Ocular injuries often result from oxidative stress, marked by an imbalance between oxidants and antioxidants, leading to eye damage. *Triphala kashaya*, rich in vitamin C, used in *Netra prakshalana*, mitigates oxidative stress. This practice not only strengthens ocular tissues but also imparts a toning effect on the eyes. Given that the anterior segment of the eye, including the cornea and conjunctiva, is directly exposed to the external environment, *Netra prakshalana* serves a multi-purpose by cleansing the eyes, preventing allergies and washing away accumulated dust particle⁹.

2. *Anjana Karma*: *Anjana* is a technique involving the application of medication along the inner surface of the eyelid, serving as a preventive measure against eye diseases¹¹. There are three types of *Anjana*: *Souweeranjana*, *Srotanjana*, and *Rasanjana*. *Souweeranjana* is particularly beneficial for the eyes and can be used on a daily basis. Considering that the eye is predominantly influenced by the *Tejas* element among the *Mahabhutas*, and is more susceptible to *Kapha dosha*, it is recommended to administer *Rasanjana* once every 7 days at night to eliminate *Kapha dosha*¹⁰. *Anjana* drugs possess a low molecular weight, facilitating their penetration of the cornea and into the lacrimal glands allowing them to exert the desired effects on the eyes based on the potency of the drug.
3. *Pratimarsha Nasya*¹²: *Nasya karma* involves the instillation of medicinal drops into the nose, recognized as the optimal treatment for *Urdhwa jatru vikaras*. *Vagbhata* and *Sushruta* mention 15 and 14 *Pratimarsha nasya Kalas*, respectively. *Anutaila nasya* is recommended during the *Pravrut* (rainy), *Sharath* (autumn), and *Vasanth* (spring) *ritu* each year. As it is *Tridoshagna*, *Anutaila* provides strength to the *Indriyas*. *Nasya* nourishes the *Shringataka marma*, the central point for the eyes, ears, nose, and tongue.
4. *Snana*¹³: Bathing stimulates all sensory organs, and opting for a cold water head bath proves beneficial for the eyes, while hot water can be harmful. Cold water head baths promote enhanced blood circulation, improved digestive activity, and the alleviation of body fatigue, sleepiness, and exhaustion. Additionally, they contribute to reducing sensations of thirst, burning, and itching in the body.
5. *Pada Prakshalana, Padatra Dharana*¹⁴: The act of cleansing the feet is regarded as *Chakshu prasada*, as it nurtures the *Padanibandha nadi*. The central region of the foot houses the *Padanibandha nadi*, establishing a direct connection with the eyes. The soles of the feet are extremely sensitive to touch, due to a high concentration of nerve endings. Any injury to the foot can directly impact the eyes. Therefore, the practice of washing the feet and wearing footwear is deemed beneficial for overall eye health.
6. *Padabhyanga*¹⁵: *Padabhyanga* involves massaging the feet with suitable oils, recognized as *chakshusya* in *Ayurveda*. The center of the feet contains two *Siras* that ascend to the head region, supplying the eyes. Consequently, when medicinal substances are applied to the feet through *Abhyanga*, they are absorbed and their effects are manifested in the eyes.
7. *Chatra Dharana*¹⁶: Utilizing an umbrella shields our eyes from the sun, wind, dust, and harmful ultraviolet radiations. According to *Ayurveda*, this practice is deemed *Chakshusya*.
8. *Dhumapana*¹⁷: It involves inhaling medicated smoke through the nose and mouth and is recommended for conditions like *Akshi shoola* and various eye disorders. It proves beneficial in preventing or alleviating *Vata* and *Kapha* disorders above the shoulder region (*Urdhwajatru*). The *Sukshma guna* of the drugs used in *Dhumapana* enable them to penetrate minute channels, while their sharp (*Tikshna*) and hot (*Ushna*) qualities liquefy *Kapha*, facilitating its elimination.

PATHYA AHARA FOR NETRA (CHAKSHUSHYA)¹⁸⁻²⁰:

Based on their action in the body and its effect on eyes, some food items are said to be *Pathya* i.e. conducive to the eyes.

- a. *Lohitashali* (Red Rice), *Mudga* (Green Gram), *Vanyakulattha* (*Dolichos biflorus*), *Yava* (Barley),
- b. *Jeevanti* (*leptadenia reticulata*), *Vaastuka* (*Chenopodium album*), *Punarnava* (*Boerhavia procumbens*), *Patola* (*Trichosanthes dioeca*), *Karavella* (Bittergourd), *Kakamachhi* (*Solanum nigrum*), *Kumari* (*Aloe vera*), *Matsyakshi* (*Hincha repens*), *Meghanada* (*Amaranthus polygonoides*)

- c. *Nari Paya*, *Go Paya* (breastmilk, cow milk), *Ajaghrita* (ghee made from goats milk), *Takra* (Buttermilk), *Peya*, *Vilepi*, *Yusha* (Rice gruels), *Kustumbru* (Coriander seeds), *Sita* (rock sugar), *Amalaki* (Gooseberry), *Draksha* (Grapes)
- d. *Mayura* (peacock), *Kurma mamsa* (Turtle flesh), *Vihanga mamsa* (flesh of birds)
- e. *Mukta* (pearl), *Vidruma* (coral), *Vajra* (Diamond), *Sphatika* (Alum)

MODE OF ACTION OF CHAKSHUSHYA DRAVYAS.²¹

The Chakshushya dravyas contain essential nutrients such as vitamin A, C, B1, B2, B6, B12, vitamin D, β -carotene, and cystine. These nutrients serve to safeguard the eyes against free radical damage and help prevent diseases like macular degeneration.

Polyphenols and tannins within the composition contribute to the radio-protective capability against conditions such as Pterygium, cataract, and Catarrhal conjunctivitis.

The presence of Glutathione and ascorbate performs anti-aging actions and provides physiological protection against oxidative damage to the lens, thereby aiding in maintaining the transparency of the lens.

IMPORTANCE OF FOOD BASED SUPPLEMENT (CHAKSHUSHYA AHARA):

Food based approach to combat blindness is largely ignored because of availability of readymade supplementation. Supplement approach fails to improve the eye health in cases of malabsorption and lacks proof of impact on child and maternal health.

Food based approach are complex to evaluate and take time to exert its effect but however, they-

- a. Reach all parts of the community: Primary, Secondary and Tertiary.
- b. Safe for pregnant woman
- c. Has no side effects, and cost effective
- d. Wide range of benefits.

The *Chakshushya ahara* have both curative and nutritive value. The drugs explained as *Chakshushya* either contain essential vitamins and minerals needed for the good health of the eye or help in its absorption.

CHAKSHUSHYA RASAYANA:

In contemporary science, where there is no much scope to prevent degenerative changes in the eye, *Chakshushya Rasayana* comes to aid for the same²².

1. **Charaka Samhita:** *Jeevaniya gana*, *Dronipraveshika Rasayana*
 2. **Sushruta Samhita:** *Suvarna*, *Bijaksaradi Yoga*, *Vidanga Tandula Yoga*
 3. **Ashtanga Sangraha:** *Triphala Rasayana*, *Mustadi Yapana Basti*, *Tuvaraka Taila*, *Kanchuki Vividha Yoga*, *Shiva Gutika*, *Swarna Makshika*, *Kushta Vividha Yoga*, *Sarpi Guda*
- In addition to *Chakshushya Rasayana*, the *Nitya Sevaniya Rasayana* mentioned by *Acharya Charaka* also has nutritive value to the eyes.

For eg:

- *Madhu* (Honey): Contains Vitamin A, B6 and Antioxidants
- *Jangala Mamsa* of *Mayura* and *Kukkuta* is rich in Vitamin A
- *Amalaki*, *Yava*, *Mudga* contains antioxidants and acts as an immunity booster.

CURATIVE EFFECT IN INCURABLE DISEASES:

On analysis of the causes of blindness in India, some diseases like RP, ARMD has no treatment in any of the contemporary sciences, in such cases the best line of treatment would be to maintain the vision as well as to delay the degeneration, which can be well achieved by treatments like: *Virechana*, *Chakshushya Basti*, *Netra Tarpana*, *Nasya*, *Anjana* and *Shamanoushadhis*.

The occurrence and progression of Cataract, which is the leading cause of blindness in India, can be delayed by using *Rasayana* and *Lekhananjanas* respectively. Diseases where anti VEGF is the main line of treatment i.e. CRVO, PDR, NPDR, Wet ARMD, CME, adjuvant therapies including *Shirodhara*, *Talam*, *Nasya*, *Basti* can be given to delay the progression which will ultimately result in lesser frequencies of anti VEGF therapy. As anti VEGF therapy is financially burdensome and has multiple side effects, the advantages are manifold.

IMPLEMENTATION OF AYURVEDA IN NPCB&VI:

Following are the ways in which *Ayurveda* can be inculcated in this national programme for a better outcome:

1. Providing flyers and organizing awareness program to educate the public on importance of taking Ayurvedic treatment as a preventive care for eye health.
2. Recommending Ayurvedic substitutes for Vitamin A supplementation in par with WHO recommendation dose/day during regular medical checkup of mother and child²³.
- For eg: For a 6-12 months baby the requirement of Vitamin A supplementation is 430 mcg which can be substituted by:

Draksha(200mcg) – 15g

Garjara(200mcg) – 8g

Nariksheera(30mcg) – 100ml

3. Giving free “*Rasayana Kits*” to patients above the age of 50 to prevent age related degeneration of eye in screening camps, PHC and CHC.
4. Including Prophylactic Eye drops made of *Triphala* in “Pink-Eye Season” to prevent the wide spread of conjunctivitis.
5. Training Asha Workers on basic procedures like *Triphala* Eye wash, so as to provide information to the community people on the determinants of eye health.
6. Including *Chakshushya Varga* vegetables, grains and other food items in Mid-Day Meal Scheme like *Karavellaka* (Bittergourd), *Navaneetha* (Butter), *Kukkutanda* (Eggs), *Garjara* (Carrot), *Ksheera*(Milk), *Shigru* (Moringa) to prevent Vitamin A deficiency, which is the chief cause of childhood blindness in India.
7. Free demonstration of Yoga including *Trataka*, *Sheetali pranayama*, *Nadishuddhi Pranayama* to the general public and explain its impact on eye health.

CONCLUSION:

Following any one stream of medicine cannot address all the lacunas faced while solving a health problem, **hence an amalgamation of ancient wisdom with modern technology is the need of the hour**. The treatments followed in *Ayurveda* has both preventive and curative effect on the Eye health. The food based supplement i.e. *Chakshushya ahara* has varied benefits over ready-made supplementations.

Considering the strength of *Ayurveda*, and the unmet targets of NPCBVI, an integral approach would be the best strategy to benefit the public.

REFERENCES:

1. WHO, Visual impairment and blindness, [www.who.int](http://www.who.int/mediacentre/factsheets/fs_282/en/), Available from- http://www.who.int/mediacentre/factsheets/fs_282/en/
2. Kounteya Sinha, India has largest blind population, cited 2007 October 11, Available from <http://timesofindia.indiatimes.com/india/india-has-largest-blind-population/articleshow/2447603.cms> via @timesofindia
3. Vision 2020 – World health Organization, Vision 2020 The right to sight, Global initiative for the elimination of avoidable blindness, Action plan 2006-2011, page no. 3, Available from- [www.who.int > Vision2020_report](http://www.who.int/Vision2020_report)
4. <https://npcbvi.mohfw.gov.in/Home>
5. International Agency for the Prevention of Blindness(IAPB), www.iapb.org, Available from-<http://www.iapb.org/knowledge/what-is-avoidable-blindness>
6. National Programme for Control of Blindness, Ministry of Health & Family Welfare, Government of India, npcb.nic.in. Available from- <http://npcb.nic.in/index1.asp?linkid=55>
7. National Programme for Control of Blindness, Ministry of Health & Family Welfare, Government of India, Available from- <http://npcb.nic.in/>
8. Dr. Vijay Kumar Rai, Textbook of SwasthvruttaVijha-yana, 2nd Chapter, Hindi Translation, New Delhi, Choukhambha Publication, 1st Edition 2012, Page no. 8.

9. Dr. Tresa Maria Job, Significant analysis of Dinacharya with special reference to preventive ophthalmology, wjpls, 2018, Vol. 4, Issue 9, 64-68 Review Article ISSN 2454-2229
10. Acharya Vidyadhar Shukla And Prof. Ravi Dutta Tripathi, Charaka Samhita of Agnivesha, Sutrasthana, 5th Chapter, 15th Shloka, Edited with Vaidyamanorama Hindi Commentary, Delhi, Choukhambha Sanskrit Pratisthana, Reprint-2006, Page no. 91.
11. Dr. Dingari Lakshmana Chary, Textbook of Shalakya Tantra, English Translation, Delhi, Chaukhamba San-skrit Pratishthan, Page no-380.
12. KavirajAmbikadutta Shastri, Sushruta Samhita of Maharshi Sushruta, Part-2, Chikitsashasthana, 18thChapater, 54thSholaka, Edited with Ayurveda Tattva Sandipika, Hindi Commentary, Varanashi, Chaukhamba Sanskrit Sansthan, Reprint-2014, Page no.99.
13. Dr. Brahmanand Tripathi, Astanga Hridayam of Sri-madvabhata, Sutrasthana, 2nd Chapter, 16th Shloka, Edited with Nirmala Hindi Commentary, Delhi, Chau-khamba Sanskrit Pratishthan, Reprint-2014, Page no. 32.
14. Kaviraj Ambikadutta Shastri, Sushruta Samhita of Maharshi Sushruta, Part-1, Chikitsashasthana, 24thChapater, 75th Sholaka, Edited with Ayurveda Tattva Sandipika, Hindi Commentary, Varanashi, Chaukhamba Sanskrit Sansthan, Reprint-2014, Page no.137.
15. Dr. Vijay Kumar Rai, Textbook of SwasthvruttaVijha-yana, 2nd Chapter, Hindi Translation, New Delhi, Choukhambha Publication, 1st Edition 2012, Page no. 14.
16. Kaviraj Ambikadutta Shastri, Sushruta Samhita of Maharshi Sushruta, Part-1, Chikitsashasthana, 24thChapater, 75th Sholaka, Edited with Ayurveda Tattva Sandipika, Hindi Commentary, Varanashi, Chaukhamba Sanskrit Sansthan, Reprint-2014, Page no.137.
17. Acharya Vidyadhar Shukla And Prof. Ravi Dutta Tripathi, Charaka Samhita of Agnivesha, Sutrasthana, 5th Chapter, 20-25th Shloka, Edited with Vaidyamano-rama Hindi Commentary, Delhi, Choukhambha San-skrit Pratisthana, Reprint-2006, Page no. 92.
18. Brahma Shankara Mishra ed. Bhavaprakasha, 2nd edition. Choukambha Orientalia Varanasi 2005, p. 113-119.
19. Indradev Tripathi ed. Yoga Ratnakar 1st ed., Choukambha orientalia, Varanasi 1998 p. 395.
20. Vag Bhatt Laghu, Astanga Hrudaya, Hindi Edition by Pandit Hari Sadashiva Shastri Paradakara. 9th edition, Chaukhamba Surabharati Prakashan, Varanasi 2005 pg. 23-35.
21. Rajitha S, A review on chakshushya varga & anjana as cosmeceuticals, international ayurvedic medical journal, Review Article ISSN: 2320 5091.
22. Sharma Ajay Kumar, Elements of Rasayan Therapy, Srisadguru publication, 1st Edition 2005, page no-68.
23. Jyoti S, Prevention of blindness caused by Vitamin A Deficiency – An Ayurvedic Perspective, www.jahm.in, ISSN-2321-1563.