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BOXING: MEDICAL AND MORAL ASPECTS

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Of all extant forms of sport in which man is pitted against man, boxing alone has as its prime and direct object the physical injury of the contestants. Stated thus baldly, boxing would therefore appear to differ intrinsically from all other types of athletic endeavor and thus perhaps to merit more than casual scrutiny. In addition, its distinct formal object raises of necessity certain ethical questions. The marked increase in audience potential resulting from modern media of communication and the concomitant rise of professional boxing to the status of "big business" have established the problem as one of practical importance. This study was undertaken in an attempt to reassess the role of boxing in contemporary society by presenting concrete medical evidence to serve as a basis for an ethical evaluation of the so-called manly art.

DEFINITION AND HISTORICAL SURVEY

According to Webster, boxing is "the art of fighting with the fists, especially when they are covered with padded gloves." This generic definition is quite accurate, although a purist might stipulate that present-day pugilism is essentially an encounter between two men of similar body weight who assail each other with gloved fists under predetermined rules for a specific duration.

While "the art of fighting with the fists" is probably as old as mankind, John Boyle O'Reilly felt that the Greeks were the first true boxers. He has stated, "Pugilism appears to have been one of the earliest distinctions in play and exercise that appeared between the Hellenes and their Asiatic fathers. The unarmed personal encounter was indicative of a sturdier manhood." One of the first descriptions of a boxing bout is contained in the account of the Argonauts search for the Golden Fleece, with Pollux conferring unhappy immortality on King Amycus as the first recorded boxing fatality.

When the mists of mythology yielded to the dawn of recorded history, pugilism was already well established. In the era of the Greek games boxing appears to have been a recognized sport. The Romans added a modification of their own, the murderous caestus, essentially a hand and forearm glove loaded with lead or iron. While pugilism in this form enjoyed a huge spectator appeal, the mollifying influence of Christianity and an understandable dearth of boxing aspirants gradually resulted in its decline. Therefore little was heard of the sport until the Renaissance when it reappeared in a less savage guise.

In 1719 James Figg of England became the first generally recognized national champion boxer. Attempts were made to codify boxing regulations and "Broughton's Rules" were approved in August, 1743. These continued in force until 1838, when "The New Rules of the Ring" were adopted. Boxing remained a bare-knuckled art until the late nineteenth century when gloves were introduced, largely as a result of the efforts of John L. Sullivan. The present century has witnessed the rise of boxing to the level of a major entertainment industry with a relatively stable format.

MEDICAL ASPECTS

Since its nature boxing affords a unique opportunity to study the effect on the human body of relatively well-standardized traumata, it is not surprising that the medical profession has long been interested in this sport. As early as 1848 the first medical report on boxing appeared in the form of a study prepared for the French Academy of Medicine by Rayer-Collard. Subsequently, there has arisen a voluminous literature embracing virtually all the medical aspects of pugilism.

The most comprehensive survey to date has been the monograph of Jokl which was published in 1941. Later studies, both clinical and experimental, have furnished additional valuable data. While it is not feasible in a limited review to condense the vast literature satisfactorily, it is hoped to present an unbiased résumé of pertinent studies. Emphasis has been placed on the more recent contributions, and on statistically significant studies rather than on isolated case reports. When an author on the basis of his investigation has expressed an opinion of boxing as a sport, this has been noted.

Physical and Psychic Advantages

The physical and psychic advantages of boxing as a participant sport are necessarily difficult to quantify and the problems involved in obtaining objective data have militated against any satisfactory statistical study. However, a survey conducted by Kenny et al. among heads of physical education departments enumerates the majority of the benefits usually attributed to boxing (Table 1). Little comment is possible or perhaps even proper, but in view of the reputed advantages in self-defense, it would be interesting to speculate on the fate of a boxer confronted by a judo expert or an armed adversary.

Physical and Psychic Disadvantages

Death: The spectre of this most dramatic, though not necessarily most tragic, complication of athletic endeavor haunts every competitive sport as, indeed, it haunts every motorist, pedestrian and housewife. However, fatalities are likely to occur more frequently in some forms of sport than in others. Because of uncertain data relative to the number of participants in...
each sport, it is not ordinarily possible to arrive at a statistically valid incidence of death for each form of competition.

With this structure in mind, the study of Gonzales' is of considerable more since it is based on abundant material passing through the Office of the Chief Medical Examiner of New York City in the 32-year period from 1918 through 1950. Fatal injuries were distributed among the various sports as noted in Table II. It is surprising, at least in the absolute number of deaths, that the relatively placid game of baseball achieves the dubious distinction of first place, with boxing third behind football. Although no facts are presented concerning the actual or estimated number of participants in each sport, the author concludes:

In recent years, opponents of boxing have expressed the opinion that the sport should be abolished, that it is potentially dangerous and not necessary to the development of those attributes which are most desirable in young men. Thirty-two years of boxing competitions, however, have produced fewer deaths, in proportion to the number of participants, than occur in baseball or football and far fewer deaths than result from daily accidents.

The statement that boxing has produced fewer deaths in proportion to the number of participants than has baseball or football appears rather gratuitous when one realizes that, in terms of individual exposure to injury, one baseball game is the equivalent of at least nine boxing bouts and one football game the equivalent of at least eleven. In addition, Gonzales' proposition is hardly aided by the impression that the number of baseball and football contests at all levels of play probably far exceeds the total number of boxing bouts.

Cranio-cerebral injury — acute. The incidence of acute severe cranio-cerebral injury in boxing is not readily determined since no extensive, accurate, and continuing statistical survey is maintained. However, in his monograph JCP has collected forty-three reports of fatalities in the ring. Accurate necropsy findings were available, in thirty-seven, in twenty-four of which the cause of death was cranio-cerebral injury, usually associated with hemorrhage. Injuries to the cervical spine and underlying cord accounted for an additional two fatalities. It is therefore evident that death during or shortly after a bout is most often the result of acute cranio-cerebral injury.

Chenoweth believes that screening of boxers by skull x-rays will furnish a partial safeguard against such injuries by eliminating those whose calvarium is abnormally thin and who therefore are thought to have an increased susceptibility to intra-cranial injury. Various head-guards have been devised which are in general use for training bouts and are mandatory for intercollegiate boxing. There is little evidence that such apparatus significantly reduces the hazard of severe head injury although many superficial lacerations may be prevented thereby.

Cranio-cerebral injury — cumulative. More insidious, but hardly less important than acute brain injuries, are the cerebral changes induced by repeated sub-lethal head trauma. In 1928 Martland became one of the first to call attention to this syndrome in boxing. He felt that definite anatomical changes could be found to account for the clinical picture and that nearly 50% of fighters will stay in the game long enough to develop punchdrunk. Eight years later, Carroll published his non-classic description of the evolution of punch-drunkness and estimated that 5% of subjects who box professionally for five or more years exhibit definite evidence of the syndrome and in the same period a full 60% will develop nervous and emotional changes which are obvious to those who knew them previously. He maintains that “no head blow is taken with impunity and... each knock-out causes definite and irreparable damage. If such trauma is repeated for a long enough period, it is inevitable that nerve cell insufficiency will develop ultimately, and the individual will become punch-drunk.”

This standard concept of the development of brain injury in boxers has been questioned by Kaplan and Browder who studied 1,043 boxers in a four-year period. Observations at the ringside and after the fight revealed no neurological deficit in the contestants, even in those who had been knocked out. Electroencephalographic data were also collected and the writers concluded that “correlation of the physical features and performance data of each fighter with the electroencephalogram failed to reveal any significant statistical results, except in the rating class in which statistical results indicated that those lower in ring rating have the greater percentage of disorganized electroencephalograms.”

Harris, however, challenges the interpretations of these investigators and suggests that they offer no proof that the punch-drunk syndrome does not exist. In a smaller study, Busse and Silverman have presented evidence that objective changes do occur. Electroencephalograms were performed on twenty-four boxers and a statistically significant increased incidence of dysrhythmic records was found (nine, or 37.5%). They also reported that fighters who had been knocked out showed more severe disturbances than those who had not. Although evidence on specific points may be conflicting it is difficult to believe that the punch-drunk syndrome is an unproved figment, as Kaplan and Browder imply.

Injury to the visual apparatus: Under this category Doggart describes three types of derangement due to boxing: (a) ocular damage, (b) injuries to neighboring structures, including the ocular adnexa, and (c) lesions of the visual pathways and other parts of the brain.

With respect to ocular damage, Albaugh states that:

Although similarities exist between the types of eye injury resulting from boxing and those resulting from other occupations, some important differences must be noted... Damage to the eye is almost always the result of a direct blow upon the eyeball and is usually severe enough to cause profound pathologic changes.

One of the tragic features of eye injuries sustained in boxing is that all too often they are bilateral, and therefore...
complete disfiguring. In the series of one hundred fifty eye injuries included in this study, injuries were bilateral (almost 12%).

Bosshoff and Jokl reported ten cases of severe eye injury due to boxing and feel that from the aspect of potential eye trauma alone, boxing should be condemned as a sport. They state, "Evidence is on record to the effect that among major sports, boxing occupies a special position, since it deliberately aims at producing head injuries."

Doggart appears to speak for the majority of ophthalmologists when he writes:

All medically qualified people have had the opportunity to dissect the head and neck. These are the only targets for disabling blows, but we know that they are the most important, because they contain the seat of intelligence, together with a most fragile set of sense organs, a sequence of delicate nerves, and a number of other structures nourished by richly anastomosing blood vessels. The very thought of setting out to smash all this artistry is sacrilege, not sport.

Maxillo-facial and aural trauma: Because of the nature of boxing, trauma to the maxillo-facial and aural areas is quite common. The repeated occurrence of hematomas of the ears frequently results in the occupational stigma known as "cauliflower ears." The wearing of a properly fitted mouth-piece has reduced but not eliminated the possibility of broken teeth. Zygomatic arch fractures are not unusual. Due to its prominence the nasal region is often injured and it is the rare boxer whose nose retains for long its pristine configuration. Seltzer has been impressed with the loss of vascularity in the noses of boxers who have had fifty or more bouts and states that repeated injuries so destroy the nose and the normal nasal lining, with replacement of dense scar of connective tissue, that vascularity is reduced.

Renal damage: Although trauma to the head, thorax, and epigastrium has long been recognized as an obvious feature of boxing, a recent study has directed attention to the occurrence of renal injury. With the cooperation of the New York State Athletic Commission, urinalyses were performed on professional boxers who fought at Madison Square Garden and St. Nicholas Arena in New York City during 1952 and 1953. One hundred and thirty nine boxers were examined. In 46% the urine changed from clear before the bout to cloudy afterwards. Albuminuria, not present prior to the contest, was found in 68% of the fighters at its conclusion. Red blood cells in significant pathologic amount were present microscopically in 73% after a fight, and granular or hyaline casts in 26%.

Since erythrocytes and casts in the urine are not found after strenuous exercise alone, it becomes apparent that the factor of trauma is of major importance. With respect to the incidence of abnormalities in the urine, only one correlating factor was found to be the number of rounds boxed by the subject. Thus, while hematuria was present in 65% of boxers after one to six rounds, it occurred in 99% of boxers who fought from seven to twelve rounds. In the latter group, the number of red cells was greater and four fighters in this category had total gross hematuria. A similar correlation exists for albuminuria, which was present in 60% of subjects who had boxed one to six rounds and in 87% of those who had fought for seven to twelve rounds.

Although it is therefore evident that acute renal trauma occurs in the majority of boxers during a bout, the long-term effect of such trauma in terms of scarring of the kidneys and possible permanent renal impairment has not yet been evaluated.

Miscellaneous injuries: The occurrence of a multitude of less common injuries associated with boxing has been documented by Jokl. These include rupture of the spleen, perforation of the small bowel, traumatic hemothorax, myocardial contusion, and a host of others. The diagnosis and surgical treatment of an interesting occupational disability, "boxer's knuckle," has been described by Gladden. Generally speaking, however, hand injuries are sustained by boxers far less commonly today than in the era of bare-knuckle pugilism. In this connection O'Reilly's plea for the adoption of gloves is of interest:

The brutalities of a fight with bare hands, the crushed nasal bones, maimed lips, and other disfigurements, which call the wearer's fist and not to the opponent. It would certainly appear true that bare-knuckle box-

ing, with the fragility of the unprotected fist as an built safety factor, might be a generally less hazardous method than that currently employed.

MORAL ASPECTS

Among moralists, opponents of the licitness of boxing are exceedingly few, and even they hedge their position with numerous strictures, many of which can be verified in theory only. Perhaps the most comprehensive analysis of the moral question is that of Bernard who reached the conclusion that professional boxing as it exists today "is immoral and should be condemned." Furthermore, while granting certain differences, he indicates that amateur boxing at the practical level shares in this condemnation. This is the position which the majority of modern theologians who have discussed the question prefer to defend—not as the officials teaching of the Catholic Church (which on this question simply does not exist), but as a matter of private conviction formulated by applying their moral principles to the facts as they understand them.

One of the first on the modern American scene to question the morality of prizefighting was Connell. Boxing, in the sense of giving and parrying light blows without any intention of striking the opponent severely or inflicting injury, is lawful for the purpose of exercise and recreation, and in order to test one's skill in self-defense. But it is difficult to reconcile prizefighting, as we have it today, with Catholic principles of morality. For, undoubtedly, the purpose of the fighters is to deal each other severe blows, and if possible to score a "knock-out." That grave injuries frequently come to those who follow prizefighting as a career is well known from experience.

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The fact that the contestants willingly submit to the possibility of being severely pummeled...after the case, after a man has no option but to allow another to beat him, appears patently unjustifiable.

Even boxing may easily become a brutal sport. Darmen says: "This type of contest can easily become unseemly; either verbally or in action, so that the degree of the injury or any probable damage to the head is unknown; for example, if the contest is not ended or if the contestant is not given the knock-out of the fighters."

The objection may even seem somewhat acute in view of the widespread corruption of the American people that is going on. Yet, it is difficult to see how any other interpretation of the fifth commandment can be given.

Rendering a minority report, Healy had previously stated:

"The practice of professional boxers of trying, by means of a knockout, to render their opponents helpless is justified. Therefore boxers do not do the opponent serious injury. Ordinarily, the one who is knocked out is simply put into a state where he is unable, for a few minutes, to champion the bust. He is still capable of being temporarily incapacitated, if at from the pain in cerebral unconsciousness and therefore constitutes a deadly accidental."

What is to be said of "slug-fests" - that is to say prizefights where each boxer mercilessly pounds the other? These matches savor of brutality and are entirely independent of the intentions that accompany the blow. And when 60% of boxers develop neurologic and psychic changes in the brief span of five years, it follows that each blow to the head tends to produce renal damage, regardless of the immediate intent with which it was delivered. The medical data already detailed appear sufficient to refute any contention that a knockout and the preliminaries thereof are usually in innocence to the victim.

2) These same effects, according to the majority of moralists, are also the direct object of the prizefighter's intention. It is totally unrealistic, they insist, to pretend that a boxer only pretends, and does not deliberately intend, the damage he inflicts on his opponent in order to win a bout. Any attempt to apply the principle of double effect is thereby immediately doomed to failure.

"Prizefighters themselves and boxing fans would be the first to admit that this is so - even though they might scoff at the moral implications of their admission."

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Theology and prizefighting.

The theological arguments most commonly employed against the licitness of prizefighting would appear to be reducible to these:

1) The "sport" of its very nature tends to result in serious and unjustifiable injury to its participants. Not only is it by its very nature an unjustified mutilation of the rational faculties, but - even more important, apparently, in the minds of some - the preliminary softening-up process, with its external lacerations and damage to internal organs, is also without justificiation.

From a medical point of view, this is perhaps the most cogent argument that could be advanced against prizefighting, and it was with the intention of providing evidence to warrant this medical conclusion as a theological argument that the present study was undertaken. When hematuria occurs in 65-89% of boxers after a bout, they each blow to the flank tends to produce renal damage and this is entirely independent of the intentions that accompany the blow. And when 60% of boxers develop neurologic and psychic changes in the brief span of five years, it follows that each blow to the head tends to produce cerebral damage, regardless of the immediate intent with which it was delivered. The medical data already detailed appear sufficient to refute any contention that a knockout and the preliminaries thereof are usually in innocence to the victim.

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...the moralists believe that the mere "giving and taking" of light blows without any intention of striking the opponent severely or inflicting injury, such an exhibition would be harmless, in no way taking any life out of any fighter. Since in boxing, even more than in other sports, the object is to win as decisively as possible, it follows that the scoring of a knock-out is greatly desired by boxers. Failing this, a T.K.O. may be sought by attempting so to disable an opponent that continuation of the bout would gravely imperil his health even in the judgment of a non-medical observer. To this end the attack is often concentrated on an already injured area (e.g., a supra-orbital laceration or a periorbital hematoma) in order to compound the injury and secure a T.K.O. That the infliction of injury in this fashion is encouraged over proficiency in the science of boxing is indicated also by the not uncommon occurrence of a fighter who is far ahead on points losing a bout by a T.K.O.

Prizefighting of its very nature tends to result in serious and unjustifiable injury to its participants. Not only is it by its very nature an unjustified mutilation of the rational faculties, but - even more important, apparently, in the minds of some - the preliminary softening-up process, with its external lacerations and damage to internal organs, is also without justificiation.

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attempted to reduce the hazards to a more reasonable level. Cooperation on the part of the boxing industry has often been less than ideal, which again suggests that injury is such an integral part of the sport that efforts to reduce the danger are considered meddlesome. Nevertheless, various state boxing commissions (notably those of New York, Illinois, and Colorado) have established certain medical regulations designed to protect the physical well-being of the boxer.

Scholastic boxing has been disapproved by the Joint Committee on Health Problems in Education of the National Educational Association and by the American Medical Association. The Committee based its action "primarily on the premise that boxing is one of the few sports in which the offensive goal is to strike the opponent and in which the head is a principal target." Inter-collegiate boxing has similarly been de-emphasized.

That the various amateur tournaments continue to flourish is perhaps indicative of their true role as pre-professional training farms. While increased cooperation with medical agencies on the part of the boxing industry may well reduce the incidence of injury and death, such revisions as would make boxing medically and morally acceptable would tend to render the sport as it is practiced today nonexistent. Suggestive of this estimate is the statement of Rev. Gerard Gray Grant, S.J., Professor of Philosophy at Loyola University in Chicago, that "we have to classify prize fighting as morally evil and it will remain so until a second foul line is established at the chin." Although it would undoubtedly diminish the incidence of cranio-cerebral injury, even such a stringent requirement as this would not alter the morally unacceptable purpose of boxing, which is to inflict injury on the opponent. Furthermore, concentration of blows on the thorax and epigastrium might well result in an increase in the number of injuries to the intra-thoracic and upper abdominal viscera.

EPILOGUE

Perhaps because boxing more than any other sport concretizes man's primal urge to self-preservation, the emotional overtones which suffuse it are strong. In the foregoing it has been difficult to subdue such elements. Boyhood memories of a youthful, clean-cut Ernie Schaaf entraining from Boston's South Station for New York and eternity vie with the thrills of the incomparable Graziano-Zale trials. And there are other vignettes - the raw excitement of the Dempsey-Willard battle preserved on celluloid, the superb artistry of Joe Louis, the young Golden Glover on a tray in the Kings County morgue. The innate appeal of boxing as a spectator and participant sport must therefore be assumed, as also must the revulsion that accompanies its tragedies. Its justification or condemnation, however, should transcend the emotional and rest on the firmer ground of rationality. From this aspect, it has been demonstrated as at least strongly probable that boxing should be condemned on both medical and moral grounds. The moral condemnation rests chiefly on the fact that boxing's prime objective, both from the nature of the sport and from the intention of the contestants, is the unjustifiable injury of the participants. Salient support is afforded this ethical view by medical evidence which indicates that boxing is always potentially dangerous to life and health, and often actually so.

SUMMARY

Boxing is unique among sports because its prime and direct object is the physical injury of the contestant. With various modifications it has existed as a form of athletics since the beginning of recorded history. The physical and psychic advantages attributed to it as a participant sport are nebulous and are shared by many safer modes of competition. Its physical and psychic disadvantages, on the other hand, are overwhelming, as shown by a survey of pertinent medical literature.

Boxing is morally wrong in the opinion of most modern theologians. Their most cogent argument derives from the contention that boxing of its nature, as well as by the direct intent of its participants, is designed to result in serious and unjustifiable bodily harm. This condemnation should, it seems, extend to the amateur as well as to the professional form of the sport, since only accidental differences exist. No amount of medical supervision is likely to render boxing morally more acceptable without resulting in an essential change in the sport as it exists today.
Reasons why boxing should be or is included in varsity, intra-mural, or physical education sports curriculum.

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<tr>
<td>Respect for other fellow</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Development of personality</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>&quot;Carry-over&quot; benefit</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>&quot;Brings out gentleman in man&quot;</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Variety</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

*from Kenney et al.*

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TABLE II

Number of fatal injuries in various sports occurring in New York City from 1918 through 1950.*

<table>
<thead>
<tr>
<th>Sport</th>
<th>NUMBER</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseball</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Football</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Boxing</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Basketball</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Handball</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Soccer</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Wrestling</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Cricket</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Golf</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Polo</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Relay Races</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*modified from Gonzales.*

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1 O'Reilly, J. B.: "Ethics of Boxing as a College Sport," Ticknor and Fields, Boston, 1888.
23 Grant, G.: Quoted in AP dispatch, Chicago, April 13, 1956. (Boston Daily Globe, Saturday, April 14, 1956, p. 8.)

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