

Toxic Tares: The Poisonous Weeds (ζιζάνια) in Matthew's Parable of the Tares (Matthew 13.24–30, 36–43)*

J. R. C. COUSLAND

Department of Classical, Near Eastern and Religious Studies, University of British
Columbia, C230 - 1866 Main Mall, Vancouver, British Columbia V6T 1Z1, Canada.
Email: cousland@mail.ubc.ca

This article examines the poisonous characteristics of *Lolium Temulentum* L., the weed that is generally identified with the tares (*zizania*) mentioned in Matthew's Parable of the Wheat and the Tares (Matt 13.24–30, 36–43). It identifies the weed, examines its pervasiveness in antiquity, as well as the nature and degree of its toxicity, and establishes that the tares of the Palestine of Jesus' day were likely poisonous. With this in mind, it considers whether the tares' toxicity is a factor in understanding the parable and its interpretation, concluding that it is very likely presupposed by both.

Keywords: *Lolium Temulentum* L., Darnel, *zizania*, Parable of the Wheat and the Tares, poison

The purpose of this article is twofold. My first goal is to investigate the poisonous nature of tares (*Lolium temulentum* L.), which has been largely disregarded by New Testament scholarship. Even detailed discussions of the parable, when they do raise the issue, do little more than mention it *en passant*.¹ Very little has been done on the botanical features of the weed since

* Much of the research for this article was conducted under the auspices of the Theology Faculty of the Humboldt Universität in Berlin. I would particularly like to thank Professor Christoph Marksches and his personal assistant Barbara Sarouji for graciously facilitating this research when I was a visiting scholar there.

1 For recent, representative examples, see A. J. Hultgren, *The Parables of Jesus: A Commentary* (Grand Rapids/Cambridge: Eerdmans, 2000) 296; J. Roloff, *Jesu Gleichnisse im Matthäusevangelium* (BTS 73; Neukirchen-Vluyn: Neukirchener, 2005) 55; K. Snodgrass, *Stories with Intent: A Comprehensive Guide to the Parables of Jesus* (Grand Rapids/Cambridge: Eerdmans, 2008) 198. Notable exceptions can be found in the substantial discussions in P. von Gemunden, 'Ausreissen oder wachsen lassen? (Vom Unkraut unter dem Weizen) Mt 13,24–30.36–43 (EvThom 57)', *Kompendium der Gleichnisse Jesu* (ed. R.

the classic studies by Gustaf Dalman, *Arbeit und Sitte in Palästina*, and Immanuel Löw, *Die Flora der Juden*, although much has happened in the scientific community since then that can be used to supplement their observations.² This article proposes to update Dalman and Löw by drawing upon modern botanical studies to describe the weed and, in particular, to offer a detailed discussion of the nature and extent of the tares' toxicity.

This article's second goal is to consider the implications that the tares' toxicity might have for the parable and its interpretation. It will raise the possibility that the author(s) of the Parable and Interpretation was (or were) familiar with tares and their deleterious effects on wheat crops, and that this understanding probably underlies both narratives.

1. The Poisonous Nature of Tares

1.1 *Ζιζάνιον and Tares*

The weed known as tares has a storied history. In addition to evocative names such as 'cheat', and 'drunk', it is also known as darnel, false wheat, poison ryegrass, and at least another dozen names in English alone.³ The reason for its multiplicity of names in a wide number of languages is that it is still regarded as one of the 'worst weeds in the world',⁴ and has been a constant and very unwelcome scourge of farmers since the dawn of agriculture in the Middle East. It is only since the emergence of mechanised seed-sorting machines in the nineteenth century that it has ceased to be a major problem in the developed world. Even now, in some parts of the Third World it continues to infect fields extensively, much as it has always done.

Before embarking on a detailed discussion of tares, however, it is necessary to establish that Matthew's ζιζάνιον (Matt 13.25, 26, 27, 29, 30, 36, 38, 40) ought to

Zimmermann; Gütersloh: Gütersloher Verlagshaus, 2007) 409, and *eadem*, *Vegetationsmetaphorik im Neuen Testament und seiner Umwelt: Eine Bildfelduntersuchung* (NTOA 18; Freiburg/Göttingen: Vandenhoeck & Ruprecht, 1993) 234–49.

2 G. Dalman, *Arbeit und Sitte in Palästina* (7 vols.; Gütersloh: 'Der Rufer' Evangelischer Verlag, 1928–42); I. Löw, *Die Flora der Juden* (4 vols.; Veröffentlichungen der Alexander Kohut Memorial Foundation iv; Vienna/Leipzig: R. Löwit, 1926–33).

3 The excellent article by H. Thomas, J. Elisabeth Archer and R. M. Turley, 'Evolution, Physiology and Phytochemistry of the Psychotoxic Arable Mimic Weed Darnel (*Lolium temulentum* L.)', *Progress in Botany* 72 (2011) 80, devotes an entire page to the multiplicity of names for *Lolium temulentum* L. in various world languages, including some seventeen names in English. Cf. also Löw, *Die Flora der Juden*, 1.723–29; L. H. N. and A. L. Moldenke, *Plants of the Bible* (Waltham, MA: Chronica Botanica Co., 1952) 133–4, 282–3.

4 L. G. Holm *et al.*, *The World's Worst Weeds: Distribution and Biology* (Honolulu: University of Hawaii, 1977) 318–19.

be identified with tares (*Lolium temulentum* L.).⁵ While some studies state categorically that ζιζάνιον is to be identified with *Lolium temulentum* L.,⁶ such certainty is hardly possible because the exact identification of plants mentioned in the ancient world is notoriously problematic.⁷ Moreover, the word ζιζάνιον does not appear to be attested much before the Common Era and, as the recent study by Jan Doehorn suggests, seems to be of semitic derivation.⁸ When Theophrastus or other early Greek authors speak of tares, they refer to αἶρα.⁹ In later sources the two are explicitly identified (*Geoponika* 2.43: *Suda* s.v. Ζιζάνιον: ἡ ἐν τῷ σίτῳ αἶρα).

The basis of the identification of the plant then becomes the characteristics of the plant furnished by the parable itself. Among other features, one can point to the close similarity of the weeds to the wheat, their synchronous growing times, and the fact that the two can be distinguished near maturity. Nevertheless, these features are not in themselves determinative. L. J. Musselman has recently raised the possibility that ζιζάνιον is not *Lolium temulentum* L. but another weed, *Cephalaria syriaca*. He observes that modern farmers in Syria and Jordan refer to both weeds in Arabic as 'zawan', and that *Cephalaria* demonstrates the same traits as *Lolium temulentum* L.¹⁰ Wheat and *Cephalaria* resemble each other until maturity, whereupon their forms begin to diverge significantly. Also significant in Musselman's view is that *C. syriaca* is now one of the most successful and widespread weeds in the Middle East, especially in hand-sown fields.¹¹

Given the limited nature of our evidence, it is not possible to discount Musselman's proposal. Among other things, it raises the possibility that ζιζάνιον could have referred to both weeds, just as the cognate term *zawan* does today.¹² Nevertheless, one key factor makes it somewhat less likely. The

5 For a discussion of the *Lolium* genus, see H. Cai *et al.*, 'Lolium', *Wild Crop Relatives: Genomic and Breeding Resources, Millets and Grasses* (ed. C. Kole; Berlin: Springer, 2011) 165–71. *Lolium temulentum* L. is one of eight (sometimes regarded as nine) species of *Lolium*.

6 E.g. Hultgren, *The Parables of Jesus*, 296; Roloff, *Jesu Gleichnisse*, 55.

7 A. E. Smith and D. M. Secoy, 'Forerunners of Pesticides in Classical Greece and Rome', *Journal of Agricultural Food Chemistry* 23 (1975) 1052.

8 Chantraine (*DELG* s.v.) and Liddell and Scott (*LSJ* s.v.) plausibly suggest that the word goes back to the Sumerian *zizân* 'wheat'. For more on its semitic derivation, see J. Doehorn, 'ζιζάνιον/ζιζάνια', *Glotta* 80 (2005) 18–19; DBAG s.v.; and H. Lewy, *Die Semitischen Fremdwörter im Griechischen* (Berlin: R. Gaertners Verlagsbuchhandlung, 1895) 52.

9 *LSJ* s.v.

10 L. J. Musselman, 'Zawan and Tares in the Bible', *Economic Botany* 54 (2000) 538. Compare the much earlier discussion by P. Ascherson: 'Cephalaria syriaca, ein für Menschen schädliches Getreide-Unkraut Palästina's und die biblischen ζιζάνια (Matth. 13,25–30)', *ZDPV* 12 (1889) 152–6.

11 Musselman, 'Zawan', 537–41.

12 Musselman observes that Arab farmers distinguish the two weeds by calling *Lolium temulentum* L. 'zawan' and *C. syriaca* 'black zawan' ('Zawan', 539). Cf. Ascherson, 'Cephalaria syriaca', 155.

current success of *C. syriaca* need not suggest that the same situation held true 2,000 years ago, even where farming methods have remained unchanged. This observation is corroborated – as Musselman acknowledges – by paleobotany, which has demonstrated that *C. syriaca* occurs rarely in ancient grain caches, whereas *Lolium temulentum* L. was commonplace. Genetic studies confirm that *Lolium temulentum* L. would have been present there from the time of the emergence of agriculture, and that the Fertile Crescent was the centre of origin of the *Lolium* genus.¹³

Although our archaeological record is both limited and non-representative, such indicators as it does provide confirm that from an early period the weed was widely disseminated throughout the Eastern Mediterranean. In Egypt, for instance, there is evidence for tares from the Predynastic period (ca. 3600 BCE) up until Late Antiquity.¹⁴ Remains of tares have also been found at sites in Bronze Age Israel and Jordan and elsewhere throughout the Middle East.¹⁵ There is likewise indirect evidence from Classical Greece.¹⁶ Aristotle's pupil Theophrastus (*Hist. pl.* 8.4.6) explicitly distinguishes the wheat of certain regions – Pontus, Egypt and Sicily – as being free or largely free of tares (ἀῖρα), a distinction which suggests that he regarded much of the wheat produced elsewhere as being contaminated by the weed.

1.2 Infelix Lolium

Rome was one of the contaminated areas, and Virgil described the weed as *infelix*, 'unfruitful' or 'unfortunate' (*Georg.* 1.153), a designation that became yet another of its names. There are good reasons why the servants in the parable seem dismayed to find that it has been sowed in the field.¹⁷ *Lolium temulentum* L. has a number of features which make it particularly 'unfortunate' or 'unfruitful'.

One of these is emphasised by the parable itself, namely, the difficulty in distinguishing tares from the wheat. The most characteristic feature of *Lolium*

13 F. Balfourier *et al.*, 'Evidence for the Phylogeographic Structure in *Lolium* Species Related to the Spread of Agriculture in Europe: A cpDNA study', *Theories of Applied Genetics* 101 (2000) 137.

14 A. G. El-Din Fahmy, 'Evaluation of Weed Flora of Egypt from Predynastic to Graeco-Roman Times', *Vegetation History and Archaeobotany* 6 (1997) 243, 246.

15 M. C. Chernoff and S. M. Paley, 'Dynamics of Cereal Production at Tell el Ifshar, Israel during the Middle Bronze Age', *Journal of Field Archaeology* 25 (1998) 405–9; Y. Mahler-Slasky and M. E. Kislev, 'Lathyrus Consumption in Late Bronze and Iron Age Sites in Israel: An Aegean Affinity', *Journal of Archaeological Science* 37 (2010) 2481; W. van Zeist and J. A. H. Heeres, 'Paleobotanical Studies of Deir 'Alla, Jordan', *Paléorient* 1 (1973) 21–37.

16 See, for instance, the numerous studies referenced by F. Megaloudi, *Plants and Diet in Greece from Neolithic to Classic Periods: The Archaeobotanical Remains* (BAR 1516; Oxford: Archaeopress, 2006) 39–48.

17 G. Barth, 'Auseinandersetzungen um die Kirchengraben im Umkreis des Matthäusevangeliums', *ZNW* 69 (1978) 160 refers repeatedly to the *Ungeheuerlichkeit* of the enemy's action.

temulentum L. is its ability to imitate grain cultivated by humans, hence its frequent designation as a 'mimic weed'.¹⁸ *Lolium temulentum* L. typically mimics two forms of wheat, one that has a prominent awn (the bristly appendage to the grains of wheat) and one that does not. The first is the type of wheat commonly associated with bread and pasta (*Triticum durum*), while the second form is emmer wheat (*Triticum dicoccum*). The first type also mimics barley (*Hordeum vulgare* L.).

It is likely that the weed co-evolved in conjunction with human farming techniques to enable its survival and promote its genetic diversity.¹⁹ Biologically, several traits have facilitated this process. It has seeds that are much larger than those of most weeds and closely resemble grains of barley and wheat. Their size makes the weeds not only more viable when they are planted, but also extremely hard to distinguish from cereal grains. As a consequence, it is difficult to separate the seeds from cereal grains by winnowing or by sieves, or even by hand. Galen reports how his father laboriously picked through wheat and barley seeds by hand to separate them from tares and goat grass. What his father had hoped to determine was whether wheat and barley spontaneously transformed themselves into tares and goat grass, or whether their presence was due to the presence of foreign seeds. The ability of tares to masquerade successfully as wheat led to the widespread ancient supposition that wheat could degenerate into tares, and that tares were actually an adulterated and debased form of wheat.²⁰ Given the high percentage of tare-seed that was typically intermingled with the sowing wheat, the resulting crop would look as if it had begun to be transformed into weeds.²¹ Yet, as Galen's father learned, in spite of one's best efforts, sifting the grain by hand was not always successful.

The same results occur in the modern world when traditional farming methods are employed. A sampling of contemporary grain storage units in Ethiopia, for instance, revealed that the percentage of tare-seeds present among the stored grain was as high as 9.4 per cent. Some other estimates of the

18 T. Senda, T. Ohsako, T. Tominaga, 'Interspecific Differentiation and Phylogenetic Relationships of Poison Ryegrass (*Lolium temulentum* L.) and Persian Darnel (*L. persicum* Boiss. & Hohen. ex Boiss.)', *Canadian Journal of Plant Science* 85 (2005) 963.

19 T. Senda and T. Tominaga, 'Genetic Diversity of Darnel (*Lolium temulentum* L.) in Malo, Ethiopia Depends on Traditional Farming Systems', *Economic Botany* 58 (2004) 568–9. G. Charmet and F. Balfourier ('Isozyme Variation and Species Relationships in the Genus *Lolium* L. (Ryegrasses, Gramineae)', *Theoretical Applied Genetics* 87 (1994) 647, argue that the species has remained fixed from the beginnings of its evolution.

20 Galen (*Alim. Fac.* vi 552–3 Kühn); and cf. Theophrastus (*Hist. pl.* 8.7.1). This viewpoint was also widespread in rabbinic thought. GenR 28.8; yKil. 1 26d, 34.

21 'Now, while it is not the nature of any other of these seeds to degenerate and change into something else, they say that wheat and barley change into darnel, and especially wheat; and that this occurs with heavy rains and especially in well-watered and rainy districts' (Theophrastus, *Hist. pl.* 8.7.1; LCL).

percentage of weeds are considerably higher.²² Given the parable's repeated reference to 'good seed' (Matt 13.27, 37, 38), one wonders whether it was actually possible, or, in the case of Galen's father, merely thought to be possible, to obtain unadulterated seed in Jesus' day.²³

The presence of such extensive amounts of the weed among the grain was and is a serious problem, and the ancients were well aware that the presence of tares among grain crops had a deleterious effect on them. Pliny the Elder describes how darnel kills off (*enecat*) wheat (*NH* 18.155, cf. 153), and Ovid (*Met.* 5.485) and Galen report on its 'negative features' (*Alim. Fac.* vi 553 Kühn). Paxamos *apud Geoponica* (a tenth-century compendium of much older agricultural lore) asserts categorically that 'tares ruin (φθειρει) the grain' (2.43.1), and there is considerable modern evidence to confirm the truth of this insight.

One of the key factors is the reduction of crop yield. In densely sown fields, tares compete with the grain for available light. The weed also has a fibrous system of roots that enables it to compete actively with grain for water and nutrients. As the parable suggests, these developed root systems are capable of uprooting the wheat if the weeds are pulled out (Matt 13.29).²⁴ In their ability to assimilate elements from the soil, tares are actually more successful than the grain, which means that the weed flourishes at the expense of the plants it mimics, resulting in considerable grain loss.²⁵ These losses can range from 17 per cent to as much as 62 per cent, depending on the forms of the farming involved.²⁶ Gustaf Dalman reports being told in the early part of the twentieth century that in Palestine two thirds of sown wheat crops sometimes emerged as tares, and that it was typical for a fifth of the crop to be weeds.²⁷

As if these features were not sufficiently detrimental to the grain, the weeds reduce the health of the crop in various other ways. Tares act as an alternative host for a variety of plant diseases that attack grain, including various types of rust, viruses and parasites. When one takes all these factors into account, it is certainly true that *Lolium temulentum* L. deserves its reputation as *infelix*.

22 T. Tominaga and Y. Yamasue, 'Crop-Associated Weeds: The Strategy for Adaptation', *Weed Biology and Management* (ed. Inderjit; Amsterdam: Kluwer, 2004) 49.

23 Tominaga and Yamasue, 'Adaptation', 47–63.

24 Dalman, *Arbeit und Sitte*, II.250, 325.

25 H. Dikici and G. D. DüNDAR, 'Wheat-Weed Competition for Nutrients in Kahramanmaraş, Turkey', *Pakistan Journal of Biological Sciences* 9 (2006) 343. They specify calcium, sodium and iron.

26 T. Tessema *et al.*, 'Grass Weed Competition with Bread Wheat in Ethiopia. I: Effects on Selected Crop and Weed Vegetative Parameters and Yield Components', *African Crop Science Journal* 4 (1996) 406–7.

27 Dalman, *Arbeit und Sitte*, II.249.

1.3 Toxic Tares

If these factors were not themselves sufficiently unfortunate, the plant is also toxic to animals and humans. While some birds seem inured to the weed – the Talmud and Columella both recommend tares-seed as pigeon fodder (*TJ* Kil 1.1, 26d; Colum. 8.4.1) – when taken in sufficient doses, tares can kill a horse.²⁸ In fact, much of the early – if regrettable – research done on tares at the end of the nineteenth century was devoted to establishing the precise parameters of its toxicity. At the veterinary school in Lyon, for instance, Charles Cornevin determined that 2 kilograms of darnel would kill a horse. He went on to establish a series of ratios in grams per kilogram which stipulated the minimum fatal dose for various animals:

Horses:	0.7 grams per kilogram of the live weight of the animal.
Ruminants:	1.5 to 1.8 grams per kilogram of the live weight of the animal.
Poultry:	1.5 to 1.8 grams per kilogram of the live weight of the animal.
Dogs:	1.8 grams per kilogram of the live weight of the animal. ²⁹

Where the dosage is non-fatal, tares have a variety of deleterious effects on animals, depending on the amount they have consumed. In horses, it can produce vertigo, a stumbling gait, trembling and convulsive movements, as well as laboured breathing, a slow pulse and coldness in the extremities. In pigs, it can promote congestion in the lungs, as well as convulsions and paralysis.³⁰

As one would anticipate, the effects on humans are not dissimilar. Tares are usually not taken in sufficient amounts to be fatal to humans, but depending on the amount ingested, they are associated with a broad spectrum of negative effects. At one end of the spectrum tares can simply make bread unpalatable, turning the flour grey and making it taste acrid and bitter. Shakespeare, for instance, has Joan of Arc (*la Pucelle*) taunt:

Want ye corn for bread?
I think the Duke of Burgundy will fast
Before he'll buy again at such a rate.
'Twas full of darnel: Do you like the taste? (*Henry VI: Act III Sc. 2*)

As this passage suggests, owing to its bad taste and toxicity, people avoided consuming tares. We do find instances where tares were deliberately mixed in with wheat or barley to make bread, but this was when people were in desperate circumstances (*Sib. Or.* 1.396; Galen, *Alim. Fac.* VI 551 Kühn) or when they actually

28 M. P. Guérin, 'Sur la présence d'un champignon dans l'ivraie', *Journal de Botanique* 12 (1898) 231.

29 C. Cornevin, *Des plantes vénéneuses* (Paris: Librairie de Firmin-Didot, 1893) 76–7.

30 K. Clay, 'Fungal Endophytes of Grasses: A Defensive Mutualism between Plants and Fungi', *Ecology* 69 (1988) 11–12.

wanted to cause poisoning or intoxication. John Gerarde, in *The Herball or Generall Historie of Plantes* (1597) notes: 'The new bread wherein darnell is, eaten hot, causeth drunkenness; in like manner doth beere or ale wherein the seede is fallen, or put into the mault.' In fact, it was not uncommon for brewers to add darnel to the mix in order to make their product more intoxicating, much as wormwood is added to absinthe. And, as with absinthe, the practice was legislated against because of its potential to cause sickness or death.³¹

Once humans consume more than 30 grams of flour made from tares they begin to experience the following symptoms: 'dizziness, headache, mental confusion with a sense of apprehension and difficulty in thinking, visual and speech difficulties (even loss of speech), decrease in salivary secretion, vomiting, inability to walk, griping, rarely diarrhoea, tremor, general weakness and finally coma'. Convulsions and delirium can also result.³²

One of the first persons to chronicle these symptoms scientifically was the pioneering nineteenth-century physician Paul Antze, who, after making preliminary trials on frogs and rabbits, dosed himself and recorded the effects. He reports that he experienced disordered senses, a combination of numbness in the head and headache, dizziness and an irresistible urge to sleep. Other symptoms he describes include extreme debility, cramps, vomiting, diarrhoea and a chilling of the extremities. He notes that his body temperature dropped from 36.9 degrees Centigrade (98.4 F) to 35.7 (96.3 F) and his pulse went from 69 to 58. It was some days before he returned to his normal state.³³

A larger-scale example of poisoning was reported by an army physician who in 1942 began treating soldiers in the town of Aden, which had been experiencing epidemics of food poisoning for over a year. These epidemics were ultimately traced to poor quality wheat from Abyssinia, which contained up to 10 per cent of a weed they called *miscara* ('tipsy'). Upon analysis, *miscara* was discovered to be tares. The physician recorded the effects as follows:

From one-quarter of an hour to two hours after taking food made of this grain, a man would become dizzy, and be smitten with headache, marked generalized tremors, lassitude, slurred speech, and a staggering gait. Sometimes, there had been vomiting and diarrhoea, and less commonly nausea and abdominal pain. Subsequent events seemed to vary directly with the amount of poison taken. If

31 For a case of fatal poisoning dating from 1818 and earlier accounts of poisoning, see Franz Hofmeister, 'Die wirksamen Bestandtheil des Taumellolchs', *Archiv für experimentelle Pathologie und Pharmakologie* 30 (1892) 203–6.

32 Cornevin, *Des plantes vénéneuses*, 76; A. Rizk and H. A. Hussiney, 'Chemistry and Toxicity of *Lolium* Species', *Poisonous Plant Contamination of Edible Plants* (ed. A. Rizk; Boca Raton, FL: CRC, 1991) 95–106.

33 P. Antze, 'Lolium Temulentum in pharmakognostischer, chemischer, physiologischer und toxikologischer Hinsicht', *Archiv für experimentelle Pathologie und Pharmakologie* 28 (1890) 143–4.

the subject had fed well, he paid for it by quickly subsiding into stupor or even a coma from which it might be impossible to rouse him for so long as ten hours; but, if he had taken only a little, his earliest symptoms would not noticeably increase and he might be fully recovered in three or four hours. There were no deaths, and within seventy-two hours even the most severely affected were well enough to resume their usual occupations.³⁴

Just why the weed produces this effect in humans and animals has been the subject of much conjecture, but despite more than a century of research devoted to the matter, the precise reasons for the toxicity of tares have yet to be conclusively established, even if very considerable advances have been made over this period. In the last decade of the nineteenth century, M. P. Guérin identified the presence of a fungus in the grains of *Lolium temulentum* L.,³⁵ and not long thereafter, E. M. Freeman was able to determine the mechanism by which the fungus propagated.³⁶ Freeman and subsequent researchers identified the fungus as a form of *Neotyphodium* (later designated as *Neotyphodium occultans*). Its mode of reproduction is asexual, and it is symbiotic with the tares plant, which is to say it is not a parasitic plant that grows on another (an epiphyte) but one that actually grows inside the plant (an endophyte). It is intimately associated with the seeds and other parts of the tares and is transmitted by the systemic infection of the tares' seeds.³⁷ When these seeds become plants in their turn, they pass the fungus on to their own seeds, and the entire process begins anew.

As was just noted, this process is not parasitic, but a form of 'defensive mutualism'. The tares plant provides the fungus with nutrients, dissemination and protection, and the fungus provides protection in its turn. While endophytic fungi can sometimes have negative effects on the host plant, in this instance the *Neotyphodium* helps to protect the tares by producing toxic alkaloids that repel creatures, particularly insects, that would harm the plant. Precisely which of these alkaloids in *Lolium temulentum* L. are responsible for its toxic effects upon animals continues to be debated.³⁸ A variety of proposals have been and continue to be advanced, but so far, there is no one convincing solution. What does seem likely, however, is that the tares plant does not itself produce the

34 D. Brinton, F.R.C.P., 'An Unusual Form of Epidemic Food-Poisoning with Neurological Symptoms', *Proceedings of the Royal Society of Medicine* 39 (1946) 174.

35 Guérin, 'L'ivraie', 230–8.

36 M. P. Freeman, 'The Seed-Fungus of *Lolium temulentum* L., the Darnel', *Philosophical Transactions of the Royal Society of London B* 196 (1904) 1–27.

37 For helpful diagrams, see C. Schardl *et al.*, 'Symbioses of Grasses with Seedborne Fungal Endophytes', *Annual Review of Plant Biology* (2004) 317–18.

38 C. Schardl *et al.*, 'Chemotypic Diversity of Epichloae, Fungal Symbionts of Grasses', *Fungal Ecology* 5 (2012) 332.

alkaloids or have any pharmacological activity.³⁹ Some have suggested that it is not the *Neotyphodium* endophyte at all, but an ergot – a type of parasitic fungus (*Claviceps purpurea*, from which LSD is also derived) – that is responsible for the tares' poisonous effects.⁴⁰ But it is most likely that the tares' toxicity is ultimately attributable to a 'cocktail of alkaloids' produced by the *Neotyphodium occultans* endophyte.⁴¹

It bears remarking, however, that not all tares plants are infected with the *Neotyphodium* endophyte, simply a very large proportion of them. The reason that the fungus has not entirely supplanted uninfected tares over the millennia is that infected plants do not always produce infected seeds. Various factors, such as weather conditions that kill the fungus, influence the ratio of infected to non-infected plants.⁴² Moreover, uninfected plants also produce uninfected plants.⁴³ Because of these and other variables, the ratio of toxic to non-toxic plants differs depending upon location and circumstances. While plants with the endophyte do constitute the great majority, it is nevertheless difficult to be certain whether Freeman's early estimate that 'probably over 95 per cent of *Lolium temulentum* grains contain the fungus' is accurate.⁴⁴

1.4 Toxic Tares in Antiquity

Were the toxic elements of *Lolium temulentum* L. present in the tares of ancient Palestine? The paleobotanical evidence from the ancient Middle East is limited because even where tares-seeds have been found they have not usually been checked for the presence of the fungus. Nevertheless, infected seeds dating from at least 1000 BCE have been found in Egypt, and this physical evidence is corroborated by literary sources.⁴⁵ Numerous ancient authors also make explicit reference to the toxic effects of tares. Theophrastus (*Hist. pl.* 8.4.6) and Galen (*Alim. Fac.* vi 553 Kühn) both report on its ability to induce headaches, while

39 R. G. Wasson, A. Hofmann, C. A. P. Ruck, *The Road to Eleusis: Unveiling the Secret of the Mysteries* (Berkeley: North Atlantic Books, 2008²) 11.

40 Albert Hofmann (Wasson *et al.*, *The Road to Eleusis*, 11) hypothesises that the *Claviceps* ergot, which grows on tares, could have been the agent which promoted the mystical experiences of the initiands at the Eleusinian Mysteries. For a different assessment, see S. Aaronson, 'Fungal Parasites of Grasses and Cereals: Their Role as Food or Medicine, Now and in the Past', *Antiquity* 63 (1989) 250–2.

41 Thomas *et al.*, 'Evolution', 91. For a survey of proposals, see 93–5.

42 P. Gundel *et al.*, 'Neotyphodium Endophyte Infection Frequency in Annual Grass Populations: Relative Importance of Mutualism and Transmission Efficiency', *Proceedings of the Royal Society B* 275 (2008), <http://rspb.royalsocietypublishing.org/content/275/1637/897>, accessed 9.3.2015.

43 K. Sampson, 'The Presence and Absence of an Endophytic Fungus in *Lolium temulentum* and *L. perenne*', *Transactions of the British Mycological Society* 20 (1933) 337–43.

44 Freeman, 'Darnel', 20.

45 *Lexicon der Ägyptologie*, s.v. 'Flora', 274; Löw, *Die Flora der Juden* 1.724–5.

Pliny the Elder (*NH* 18.156) and Paxamos (*apud Geoponica* 2.43.1) comment on the vertigo it produces. Its soporific effects are mentioned by Aristotle (*Somn. Vig.* 456b30), while Ovid alludes to its adverse effects on vision: ‘Let the fields be clear of darnel that weakens the eyes’ (*Fasti* 1 691; LCL; cf. Plautus, *Miles* 321–2). A work on Nabatean agriculture, probably dating from the third or fourth century CE, mentions all of these symptoms.⁴⁶

In addition to this evidence, several of the weed’s ancient names give expression to its poisonous effects. According to the *Oxford Latin Dictionary*, the Latin name *lolium* is derived from the Sanscrit *lōlati* – ‘moves to and fro’ – signifying that ‘the plant causes giddiness’ (*OLD* s.v. *lolium*). These data make it evident that if ζιζάνιον is to be regarded as tares, then the tares of first-century Palestine would in all likelihood have been toxic. In fact, notwithstanding the three regions mentioned by Theophrastus (*Hist. pl.* 8.4.6), it is probable that the tares throughout most of the ancient Mediterranean world were toxic; certainly there is substantial evidence to suggest that in antiquity a variety of expedients were employed in addition to sorting by hand to separate the tares-seeds from the grains of wheat. Different types of sieves were used with limited success. A fragmentary play by Aristophanes describes a device used for this purpose and, as was noted above, legislation was also introduced as a means of enforcing the separation of tares-seed from wheat.⁴⁷

The foregoing discussion permits the following observations. While certainty is not possible, it is probable that Matthew’s ζιζάνιον is *Lolium temulentum* L., and that fungus-infected *Lolium* was commonplace in the Palestine of Jesus’ day. Given the inefficiency of ancient farming techniques, and the difficulty of separating wheat- and tares-seeds by hand, the wheat fields would have been rife with tares. Even without an enemy oversowing the wheat crop with tares, there would still have been a high proportion of weeds. And, quite apart from the adverse effects of the weeds on the growth of the wheat, much of the flour resulting from the wheat harvest would have been unsavoury or illness-inducing because of its adulteration by toxic tares-seeds.

These negative consequences are so pronounced that one needs to ask how likely it is that the tares’ poisonous qualities would have been unknown or simply overlooked, by Jesus and/or Matthew and their audiences. Given the importance of the grain crop for the entire populace, and the likelihood of recurrent tares poisoning as a result of periodic grain shortages, it is probable that it

46 The work on Nabatean agriculture is a component of a medieval treatise entitled *Picatrix*; cf. B. Bakhouché, F. Fauquier, B. Pérez-Jean, eds., *Picatrix: Un traité de magie médiéval* (Turnhout: Brepols, 2003) 350: ‘La graine d’ivraie est nuisable à la tête, voile les yeux, supprime même la vue et fait dormir.’ Galen would further attribute skin ulcers or other signs of an unhealthy state in the humours to tares (*Alim. Fac.* vi 553 Kühn).

47 S. Amigues, ‘Le crible à ivraie d’Aristophane Fr. 497 K.-A.’, *Revue de philologie, de littérature et d’histoire anciennes* 77 (2003) 17–22.

would have been known to them. That said, it may not – we do not have archaeological evidence from Jesus' day firmly establishing the presence of the *Neotyphodium occultans* fungus in the tares-seeds of Palestine. Further, Jesus or Matthew may have chosen to disregard the toxic nature of tares in order to focus on other factors, such as its resemblance to wheat. Are there indications in the parable and/or its interpretation that would suggest that the tares' toxicity was an important hermeneutical factor?

2 The Parable of the Tares and its Interpretation

It is often recognised that the Parable of the Tares and its interpretation do not mesh particularly well. While various solutions have been advanced to account for this incongruence, for the present purpose here it is not necessary to adopt one particular solution, but merely to acknowledge that a certain incongruity exists.⁴⁸ On the assumption that Jesus and/or Matthew and their audiences were aware that tares were poisonous, do the parable and its interpretation give any indications of the fact?

The parable proper could imply such an awareness. The landholder's decision not to remove the tares immediately, but to wait until the harvest, indicates that he considers that the harm done to the crop by letting the tares grow together with the wheat would be less than if the tares were immediately uprooted (Matt 13.29–30).⁴⁹ Despite what was said above about 'tares ruining the grain', the parable does not mention anything explicitly about the tares harming the wheat during the growing process. It is only at harvest time that the tares are to be collected and bound into bundles to be burnt, with the wheat to be harvested thereafter. Here, however, the care with which the landholder proposes to separate the two would suggest that he wants to prevent the tares-seed from adulterating the grain. His detailed instructions would prevent the tares-seed from having any further contact with the wheat crop, and thereby ensure that the harvest that began with 'good seed' (Matt 13.27) would also result in the production of 'good seed'. His careful separation need not suggest that he has the tares' toxicity in view, but it is a reasonable inference.⁵⁰

The parable's interpretation, however, is notably different. Whereas in the parable the tares are harvested and set aside for burning before they can

48 See for instance the seminal article by J. Jeremias, 'Die Deutung des Gleichnisses vom Unkraut unter dem Weizen (Mt. xiii 36–43)', *Neotestamentica et Patristica* (NovTSup 6; Leiden: Brill, 1962) 59–63, which argues that the interpretation is not dominical. For an opposing view, see Snodgrass, *Stories with Intent*, 207–12.

49 Contrast the Parable of the Sower, where the thorns choke the wheat (Matt 13.7).

50 If the tares in Matthew's day were non-toxic, it may simply be that the landholder wants a harvest with the least admixture of tare-seed. Nevertheless, the pronounced emphasis placed on separating the wheat and the weeds is revealing.

contaminate the grain harvest, the parable interpretation suggests that such contamination actually occurs. Its allegorical reading establishes in detail the evil nature of the tares, as well as their malign influence on believers:

The weeds are the children of the evil one (οἱ υἱοὶ τοῦ πονηροῦ), and the enemy (ὁ ἐχθρός) who sowed them is the devil (ὁ διάβολος); the harvest is the end of the age, and the reapers are angels. Just as the weeds are collected and burned up with fire, so will it be at the end of the age. The Son of Man will send his angels, and they will collect out of his kingdom all causes of sin and all evildoers, and they will throw them into the furnace of fire. (Matt 13.38–42)

This passage begins by emphasising the involvement of Satan and his intimate connection with the ‘tares’. A trio of designations in the passage make his malevolent nature explicit. The term ‘enemy’ (ὁ ἐχθρός) is itself used as a designation for Satan in a variety of Second Temple works.⁵¹ The ‘evil one’ (ὁ πονηρός) is one of Matthew’s recurring terms for Satan and, as Matthew 13.39 makes clear, he uses it synonymously for the devil (ὁ διάβολος), the slanderer or adversary.⁵² In being identified as his sons (οἱ υἱοὶ τοῦ πονηροῦ), therefore, it is evident that although the tares are not themselves the devil or the evil one, they, as his progeny, share his basic nature. They, too, are essentially evil.

The passage illustrates the adverse effects that Satan and his progeny have on believers. The -ος suffix of all three of Satan’s designations indicates agency and denotes that Satan’s malign nature expresses itself in terms of maleficent actions. As the enemy (ὁ ἐχθρός), he opposes God and his people; as the devil (ὁ διάβολος), he slanders believers; as ὁ πονηρός, he acts in a manner that is ‘morally destructive’.⁵³ It follows, therefore, that the ‘children of the evil one’ also act in a morally destructive way.

This supposition is corroborated by other terms that focus on the actions of the ‘tares’: they figure among ‘all causes of sin’ (πάντα τὰ σκάνδαλα), and ‘evildoers’ (τοὺς ποιοῦντας τὴν ἀνομίαν) (Matt 13.38, 41). This use of σκάνδαλα in Matthew is highly characteristic. They are obstacles to faith and hence things that cause destruction and falling away on the part of believers.⁵⁴ The word takes on different senses in the Gospel, and it may be that Matthew understands τὰ σκάνδαλα here as things – as obstacles to belief.⁵⁵ On the other hand, the

51 J. Nolland, *The Gospel of Matthew* (NIGTC 1; Grand Rapids/Cambridge: Eerdmans/Paternoster, 2005) 547 #76 cites *GLAE* 2.4; 7.2; 25.4; 28.3; 3 *Bar* 13.2; *Test. Dan* 6.3; *Test. Job* 47.10.

52 On ὁ πονηρός in Matthew, see D. C. Sim, *Apocalyptic Eschatology in the Gospel of Matthew* (SNTMS 88; Cambridge: Cambridge University Press, 1996) 77–83.

53 BDAG s.v. πονηρός.

54 G. Stählin, ‘σκάνδαλον’, *TDNT* vii.345; H. Giesen, ‘σκάνδαλον’, *EDNT* iii.249; I. H. Jones, *The Matthean Parables* (NovTSup 80; Leiden: Brill, 1995) 214 #135.

55 Nolland, *Matthew*, 560–1; cf. BDAG s.v.

association of τὰ σκάνδαλα with 'doers of lawlessness' makes it more likely that it is used here of people who bring ruin to believers or potential believers by causing them to sin.⁵⁶ J. D. Kingsbury, for instance, suggests that the interpretation's use of τὰ σκάνδαλα in an absolute sense not only involves 'persons who lead believers astray, but also persons who in some passive way may be hindering or preventing non-believers from ever coming to faith in Jesus'.⁵⁷

A similar interpretation arises with 'evildoers' (τοὺς ποιῶντας τὴν ἀνομίαν). The word ἀνομία in Matthew has a variety of meanings, but one of its aspects consists in transgressing God's law in a way that harms God's people. Matthew 24.12, for instance, indicates that it is precisely because of ἀνομία that the love of many will grow cold. Evildoers poison the love and faith of the children of the kingdom and bring about their spiritual death.

Taken together, the designations for the weeds in the parable interpretation uniformly betray their harmful character. The 'tares' both by their nature and their actions directly oppose God and tempt the children of the kingdom into forsaking him, his kingdom and his laws. Matthew's interpretation transposes the message of harm from the physical sphere to the spiritual one. It is not physical poison that he is concerned with, but spiritual poison. Those causing scandal endanger the spiritual well-being of believers, pervert their values and bring some to forsake their faith. Just as poison harms the body and can induce illness or death, so too those scandalising others can induce spiritual death among believers. And this harm is far more grievous than mere physical death because, in Matthew's view, its consequences are eternal. As Jesus makes clear elsewhere in the Gospel, it is far better to lose one's hand, or eye – or life – than one's eternal soul (Matt 5.29–30; 18.8–9).

The foregoing discussion, therefore, indicates that in the parable's interpretation the tares (*qua* 'children of the evil one') *do* have a role in harming the wheat. Where the parable seems to imply that the wheat emerges unscathed from its contact with the tares, the interpretation indicates the reverse – the tares undoubtedly have a destructive effect on the wheat: namely, the 'children of the kingdom'.

This contradiction between parable and interpretation makes it difficult to determine what the interpretation views as the cause of the tares' deleterious effects. While it indicates that the tares are harmful, it does not stipulate precisely how they are harmful. Is it because tares impede the wheat's growth or because they ultimately poison the wheat harvest? Or is it both? If it is the growth process,

56 Stählin, 'σκάνδαλον', 346; Giesen, 'σκάνδαλον', 249; J. Gnllka, *Matthäusevangelium* (HTKNT I 1; Freiburg/Basel/Vienna: Herder, 1986) 502; D. Hagner, *Matthew 1–13* (WBC 33A; Dallas: Word, 1993) 394; C. Evans, *Matthew* (NCBC; Cambridge: Cambridge University Press, 2012) 280.

57 J. D. Kingsbury, *The Parables of Jesus in Matthew 13* (London: SPCK, 1969) 103.

then the toxicity of the tares is ultimately not a relevant factor, since it would be the tares' weedlike features (competition for sunlight and nutrients, diseases) that caused the damage.⁵⁸ If, however, it is either of the latter two options, then the toxic character of the tares is pertinent to the interpretation since it would be the tares' poison that ruined the harvest. Given the lack of precision in the metaphor, certainty about any of these options is difficult but, on balance, there is a considerable likelihood that the Interpretation of the Parable of the Tares presupposes the toxicity of the tares.

This possibility is strengthened by Matthew's use of the poison metaphor for spiritual corruption in another context – namely, in his repeated description of the scribes and Pharisees as a 'brood of vipers' (γεννηματα ἔχιδνῶν, Matt 3.7; 12.34; 23.33).⁵⁹ The term ἔχιδνα refers to the poisonous sandviper (*vipera ammodytes*),⁶⁰ and Matthew's recurrent use of this word in preference to ὄφις demonstrates that 'the poison of the snake is an essential element in the metaphor'.⁶¹ The ἔχιδνα was the poisonous snake that bit Paul on Malta, an event which prompted amazement among the locals when he did not swell up or fall down dead (Acts 28.3–6). According to modern research, the locals' expectations were not wide of the mark. Sandviper bites commonly result in subcutaneous bleeding, and vomiting, and death may well ensue from the onset of delayed shock or respiratory failure.⁶²

What does it mean, then, when Matthew thrice identifies the Pharisees as deadly sandvipers?⁶³ Chapter 23 would lead us to suppose that he saw their deadly poison operate in two ways. The first would be in the literal killing of the prophets, wise men and scribes that he imputes to them (Matt 23.34; cf. 23.37). The second would be their involvement in facilitating the spiritual death

58 Though when these options are taken allegorically, a question that needs to be asked is how much of a difference there is between causing a brother to stumble and corrupting his production of good fruit.

59 Matthew 3.7 is derived from Q, though it is more likely that Luke's addressees – the crowds – were the original recipients of the Baptist's invective (Luke 3.7). Cf. U. Luz, *Matthew 1–7* (Minneapolis: Augsburg, 1989) 169–70. The other two references to vipers (Matt 12.34; 23.33) are both Matthean.

60 BDAG s.v.

61 W. Foerster, 'ἔχιδνα', *TDNT* II.815. Cf. W. D. Davies and D. Allison, *The Gospel according to St Matthew*, vol. I (ICC; Edinburgh: T&T Clark, 1991) 304: 'The intended reference is ... to an evil and destructive and repugnant character: the serpent is poisonous (cf. Herodotus 3.109; Ps 58.4; Mt 12.34; T. Abr. 19; *m.'Abot* 2.10).'

62 S. Gitter and A. De Vries, 'Symptomatology, Pathology, and Treatment of Bites by Near Eastern, European, and North African Snakes', *Venomous Animals and their Venom*, vol. I (ed. W. Bücherl and E. Buckley; New York: Academic Press, 1968) 363–4, cited in John Scarborough, 'Nicander's Toxicology. I: Snakes', *American Institute of the History of Pharmacy* 19 (1977) 22 #99.

63 Strictly speaking, a snake's venom is not poison (in the sense of something ingested), but it is doubtful whether this distinction would have been significant for Matthew's hearers and readers.

of those in their care – either by locking them out of the kingdom and preventing them from entering (Matt 23.13), or by turning their own proselytes into ‘children of hell’ (Matt 23.15), presumably by means of dissimulation and misinformation.⁶⁴ The use of this further ‘toxic metaphor’ suggests that spiritual poisoning was part of the stock of images which Matthew used to describe the spiritual pitfalls and stumbling blocks that awaited the ‘children of the kingdom’ (cf. e.g. ‘ravenous wolves’, Matt 7.15; ‘blind guides’, 15.14; 23.16, 24; ‘white-washed tombs’, 23.27).

Of course, this example need not imply that he also regarded the tares as toxic, and it is entirely possible that the parable and/or its interpretation do not refer to tares poisoning. It may be that the Palestinian tares of the first century CE were not toxic, or that the author(s) and audience(s) of the parable and interpretation were unaware of the tares’ toxicity, or that they were chiefly concerned with the negative competitive features of the tares and not its toxin. Notwithstanding these possibilities, the above discussion demonstrates that a substantive cumulative case can be made for the supposition that both the parable and its interpretation demonstrate an awareness of the toxicity of tares. This being so, it is a feature that needs to be factored into future interpretations of both parable and interpretation.

3 Conclusion

This essay has sought to address two issues. The first was to update Dalman and Löw’s investigations of the poisonous nature of tares (*Lolium temulentum* L.), and the second was to consider the implications that the tares’ toxicity might have for the Parable of the Tares and its interpretation. If the common identification of Matthew’s ζιζάνιον with *Lolium temulentum* L. is warranted, then it is probable that the tares in the Israel of Jesus’ day were toxic, even if the precise botanical mechanisms underlying this poisoning continue to be debated. While this toxicity would not, in all likelihood, have been life-threatening, tares poisoning would have ranged from being distinctly unpleasant to seriously harmful, and would probably have been all too familiar to Galilean farmers.

For this reason, the toxicity of the tares needs to be taken into account when interpreting Matthew’s Parable and Interpretation of the Tares. It is not unlikely that the parable and interpretation both presuppose the toxicity of the tares. Here Matthew uses the toxic effects of one of the ‘world’s worst weeds’ to serve as a vivid metaphor for Satan’s destructive influence on believers.

64 A passage in 1QH 13.26–7 provides an illustrative parallel: ‘They plot evil in their heart, m[en of Be]lial have opened a lying tongue, like viper’s venom that spreads to the extremities.’ Translation from F. García Martínez and E. Tigchelaar, *The Dead Sea Scrolls: Study Edition*, vol. 1 (Leiden/Grand Rapids: Brill/Eerdmans, 2000) 173.