

Pythagoras and Beans

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Pythagoras forbade his disciples to eat beans. The Bean Veto, as we shall call it for shortness, was proverbial in Antiquity, and the failure of the Master to reinforce his prohibition with reasons led his followers and his critics to adduce a host of explanations; most of these are obviously rationalizations, sometimes confessedly so, inasmuch as their author lists a series of alternatives, leaving his reader to choose that which to him seems the most plausible.¹

In Greek thought before Socrates and Plato the place of Pythagoras was an important one. In the manner of Greek philosophy itself, he emigrated from Asia Minor to the West, settling in Croton in southern Italy in about the year 530 B.C. Here he taught a mysticism of numbers, and a gentle and abstemious way of life which was governed by a complicated system of rules; an important principle of his teaching was that souls migrate after death between men and animals and probably even plants. Some of the precepts attributed to Pythagoras are, or seem to be, explicable in terms of his teaching, but others are less easy to understand; thus, the strict vegetarianism which he demanded seems a reasonable consequence of his doctrine of metempsychosis; the facts that a good Pythagorean might not pick up what had fallen, nor urinate in the direction of the sun, bring to mind no equally obvious explanation, though the history of such taboos may suggest analogies which have some relevance to Pythagorean teaching. But the Bean Veto stands apart; at first sight it seems to be entirely arbitrary, and yet it tantalizingly demands an explanation: why just beans? There have been, and there are, other prohibitions on foods, but whilst they may bear no justification in reality, they usually carry a direct threat: Don't eat X, it'll give you heartburn, constipation, make you impotent, etc. Such taboos may be, medically, nonsense, but they do warn of a (perhaps totally improbable) consequence. One wants to say to Pythagoras, Very well, suppose that we eat beans, what will happen to us? — a prohibition on food, unless the food be given a symbolic value, presupposes a physical disturbance as the result of eating it.*

Rules in any religious system fall into three categories: those which emanate from a point of doctrine, those which have a symbolical significance and those which have a practical value, or are thought to have a practical value, in themselves. It is common, however, for all the rules to be embodied in a code which itself has the sanction, not of reason, but of faith. Can the Bean Veto be fitted into these categories?

Whenever they mention the Bean Veto ancient writers seem to feel a challenge to explain it. Diogenes Laertius speaks of it as follows:² Aristotle

* The Greek 'kyamos' is the broad bean (*Vicia faba*). The origin of the faba bean and its identity with the kyamos of the Greeks is discussed by de Candolle, *Origin of Cultivated Plants*, London, 1884, pp. 316ff.

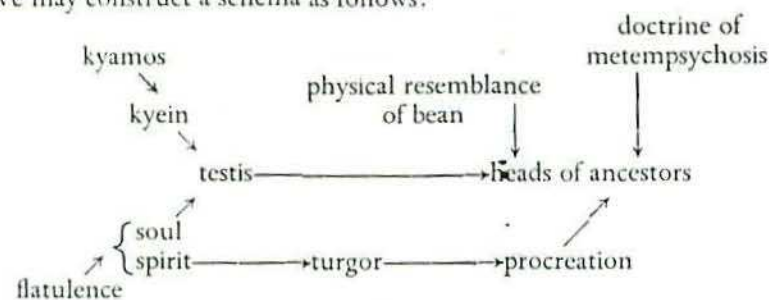
in his work on the Pythagoreans says that Pythagoras enjoined abstinence from beans — either because they are the same as the pudenda (i.e. testes) ... (here there is a corrupt passage) ... or because they do harm, or because they are as the nature of the whole, or because they savour of oligarchy, for they are used in voting. Plutarch³ is thinking along similar lines as the last of these explanations when he says that 'do not eat beans' is meant allegorically for 'keep out of politics'.

Gellius⁴ on the other hand is at pains to deny that Pythagoras issued any such prohibition; on the contrary, he says, quoting Aristoxenus, whom he describes as a most assiduous student of ancient literature and a pupil of Aristotle, that so far from forbidding the bean, Pythagoras ate no vegetable more readily than the bean, on account of its laxative properties. Here we have an example of a common property of legend: a fact is linked with a name but the negative is confused with the positive.

Perhaps the best known expression of the prohibition is Empedocles's bizarre injunction: 'Wretches, utter wretches, keep your hands from beans!' Gellius says that here beans is used symbolically for 'testes', inasmuch as *kyamos* (a bean) is that which is responsible for pregnancy (*kyein*); thus Pythagoras sought to dissuade men not from eating beans but from sexual indulgence.

With Gellius' belief that beans are good for the digestion one may contrast that of Philostratus,⁵ who says beans 'blow up the stomach'. Diogenes Laertius also mentions this flatulent property of beans, and the passage⁷ in which he does so is particularly interesting in that Diogenes says that it is on account of this property that beans 'partake of Spirit'; this confusion, or overlap, between the concept of wind in its physical sense and the metaphysical concept of spirit is noticed by R. B. Onians;⁸ and, as Onians suggests, it may explain otherwise enigmatic statements such as 'to eat beans is equivalent to eating the heads of one's ancestors'⁹ and 'one should keep from beans as from human flesh'.¹⁰ In the writings of the ancient medical school of Salerno,¹¹ there is a statement to the effect that this 'windy' property of beans gives them aphrodisiac qualities, in that they cause the male organ to swell up (they do not, we are told, produce the same effect in the female, in whom they may even cause sterility).

We may construct a schema as follows:



In this connection Porphyry's account¹² is interesting: men and beans were together generated from primordial confusion; hence beans, if broken into small pieces and exposed to the rays of the sun, emit the odour of human blood. If a bean blossom be buried in proper circumstances, one can in due course expect to find in its place 'either the head of a child or a woman's pudenda'.

The Doctors of Salerno were not the first to attribute to beans the property of making women barren; Clement of Alexandria¹³ quotes Theophrastus, who said that so strong is this power of beans that they will dry up saplings newly planted in their vicinity and even make barren the birds that feed on them.

Several writers say that beans 'trouble the mind in sleep' (Cicero), 'cause sleeplessness' (Pliny), 'cause disturbing dreams' (Diogenes).¹⁴ One could make this list of explanations a very long one, but the conclusion even now is surely obvious: whilst they could make guesses, the ancients in fact did not know why Pythagoras forbade beans. St. Gregory¹⁵ was less constructive than other commentators, but at least he admitted his ignorance, when he concluded that 'ipse dixit' was held by the Pythagoreans to be sufficient explanation of their teacher's precepts. Lucian,¹⁶ in one of his satires, suggests that Pythagoras deliberately issued irrational dogmata, his intention being to make himself into an oracle.

All this variety of speculation, proving as it does the ignorance, reaching back into Antiquity, on this matter, should make us sceptical of finding an explanation today, since it is not at first glance likely that any unpleasant result of bean-eating should be more obvious to us than it was to the ancients — unless it were due to an aspect of modern life, in which case it would have no relevance to our problem. If we were to find an explanation, it would need to satisfy the following requirements: it should be applicable to conditions in Antiquity, and in the Mediterranean region; the effects of eating the bean which it would describe should not have been generally known; and they should be such that the subject would see a causal relationship between his symptoms and the eating of beans — in short, that there was a minority of people susceptible to some effect caused, to them obviously or apparently, by beans.

It will be no surprise to readers of this journal that my suggestion is that the origin of the taboo lies in the prevalence of favism in the Mediterranean lands. Certain evidence which I shall describe suggests that Pythagoras himself may have suffered from this condition. Moreover, whilst there are suggestions that the Bean Veto was taken over by Pythagoras from other sources, in particular from Orphism¹⁷ or Zoroastrianism,¹⁸ yet the fact remains that it is with the name of Pythagoras that it is constantly linked in ancient writing; and even if Pythagoras had adopted it from elsewhere, the question would still remain, Why did he choose to incorporate in his teaching this particular taboo, which has no obvious relevance to it? (The commonest answer given by modern writers is that the bean, in common

with other living things, had a soul, and possibly one that had once resided in a human being; but this is of course no solution, for why should the bean, of all plants, alone be protected?)¹⁹

Favism is the name given to a syndrome the main feature of which is a haemolytic anaemia with haemoglobinuria and icterus, which occurs in certain people after the ingestion of, or contact with the pollen or products of, the broad bean, *Vicia faba*. It has with the rarest exceptions, been described as existing only in the Mediterranean basin, or in persons of Mediterranean origin, such as Italian Americans; only one case²⁰ has, to my knowledge, been described in this country in a boy of no known Mediterranean antecedents.*

The locus classicus in the English literature, for favism as a clinical entity, is a paper by Luisada (1941).²¹ There is also an older Italian monograph by Manai.²² Brief descriptions are to be found in all the textbooks of haematology.

The acute haemolysis manifests itself dramatically in the form of a discoloured urine and often jaundice. These symptoms can be induced by ingestion of the bean or simply by inhalation of its pollen. The severity of the reaction is variable; it may not progress beyond an initial stage of nausea, vertigo, vomiting, with coldness and pallor, or it may go on to collapse, with severe lumbar pain, pyrexia of up to 103°, and haemoglobinuria and icterus. With inhalation, the symptoms may begin almost instantaneously; with ingestion, there is a latent period of 5-24 hours before the onset of the malaise.

Examination of the patient reveals an enlarged spleen and liver. There may be 'functional' heart murmurs. The fever is irregular, either remittent or intermittent. Fatal cases show a sudden rise, or a sudden fall, just before death. The jaundice, it seems, is never accompanied by itching.

Death, if it occurs, is commonest on the first or second day; most deaths are among children, in whom the mortality may be as high as 8 per cent. The haemoglobinuria continues for five to six days, the jaundice rather longer, and in the absence of complications the anaemia is generally fully repaired by the end of a month.

The urine, which may vary in colour from red to black, contains albumin and casts. The red cells may fall to one million or even less. An initial neutrophil leucocytosis is soon replaced by an excess of lymphocytes with an increase in both monocytes and eosinophils. The platelets first rise and then fall. Diarrhoea is common but only in cases due to ingestion.

Cases which come to post-mortem show heterogeneous degenerative changes in many organs with signs of acute inflammation in either the gastro-intestinal or respiratory tract, according to the mode of entry of the allergen.

* The disease is commonest in Sardinia and Calabria, both being areas that have suffered particularly little change of population over the centuries. There may also be acute abdominal pain among the other symptoms, so presumably, at any rate in Sardinia and Calabria, favism is part of the differential diagnosis of the acute abdomen.

Until recently little more was known about this haematological oddity. Now, however, the interest of, in particular, some Israeli workers has suggested that a study of the biochemistry of this condition may make possible a new approach to this type of idiosyncrasy.

In 1957, Szeinberg and Chari-Bitron²³ showed that the red cells of persons sensitive to beans, and also to sulphur drugs, naphthalene, furandantin and certain other substances, were relatively deficient in glutathione. The same deficiency had been found in American negroes who were sensitive to primaquine. These red cells had diminished activity of the enzyme glutathione-reductase. The same cells showed a defect in the oxidation of glucose via the 'hexosemonophosphate shunt' and this defect was found to be due to a deficiency of the enzyme glucose-6-phosphate dehydrogenase.

Szeinberg and his associates have described methods of estimating the concentrations of these substances, and in a preliminary communication to the Haematological Congress which was held in Rome last summer,²⁴ and, more fully, in last November's edition of *Blood*,²⁵ they have applied their methods to the various ethnic groups among the Jews of Israel. Their results have been extremely interesting.

Dividing their subjects into Ashkenazi and non-Ashkenazi Jews — that is, broadly speaking, Jews of Western origin and Jews of Oriental origin respectively — they found that, in keeping with the fact that (as would be expected) only the oriental Jews were prone to favism, the glutathione levels were persistently lower in these persons than in those of Western origin. On the basis of their work they took 30 mgm. per cent of reduced glutathione as the dividing line, and they found that not one Ashkenazi fell below this level, whilst the non-Ashkenazis were consistently below it; and those who suffered from the type of idiosyncrasy described had consistently low levels.

Dividing the non-Ashkenazis into sub-groups according to their land of origin, they now found that the Jews from Iraq had a significantly lower level than any other of the sub-groups. Now, the Jews of Iraq have had more continuity and greater isolation as a community than, probably, any other; indeed, they were carried off into Babylonian captivity in 586 B.C. — in the very century in which Pythagoras flourished.

And so we come back to Pythagoras. Did he suffer from favism? Well, it is obvious that we cannot prove that he did, but the facts are remarkably consistent with such a theory. The 'incubation time' of the disease is such that a person would know that beans had made him sick: unless this were so, to show that beans could have made him ill would not be evidence that it was for this reason that he forbade them, for if the gap between cause and effect were too long, the subject would not know that the one followed from the other.* In fact, though, the sniffing of bean pollen — in effect, the

* In this connection it is worth noting that the mother of the boy in the Lancet case was insistent that it was beans that had upset her son: moreover, she claimed that an uncle of hers used to be made ill by eating beans. It was in fact the mother's insistence that led the doctors to the diagnosis.

mere sight of beans in flower — could suffice to make a susceptible person sick;²⁶ and with this in mind I looked for evidence that it made Pythagoras sick. I found the following account of Pythagoras' death:²⁷ The people of Croton were in pursuit of Pythagoras. In his path was a field of beans, and when he reached it, he halted in his tracks, saying that he would rather be taken than set foot in it. And so he was slain at the hands of his pursuers. Tertullian confirms that 'Pythagoras would not allow his disciples even to walk among beans'. Iamblichus in his *Life of Pythagoras*²⁸ tells a dramatic story of Pythagorean self-discipline: the tyrant Dionysius was pursuing the Pythagoreans of Croton; they were chased to the border of a bean-field, where they died to a man. Myllias of Croton and his Spartan wife Timycha had fallen behind in the chase, because Timycha was pregnant. They were brought as prisoners to Dionysius, who, greatly curious, asked why it was that Pythagoreans would not enter a bean-field. Myllias replied that a Pythagorean would rather die than walk among beans, and that he himself would rather die than divulge why this was. He was dragged away to his fate, whereupon his wife, whose Pythagorean training had been built on the sound foundation of her Spartan birth, rather than speak the dread secret, bit out her tongue and spat it at her captor. Did they perhaps themselves not know the answer, or were they ashamed to confess it?

We have seen that favism is a Mediterranean disease, and we find that it is today most common in parts of the Mediterranean lands which have suffered little over the ages from changing tides of inhabitants. Sardinia has not been fought over by colonizers; the isolated Jewish community of Iraq has intermarried in its seclusion for two and a half millenia. Whatever the genetics of favism, a controversial and, so far, incompletely understood subject, so much is obvious: the disposition to favism has been passed down in isolated communities, and it must have existed too in the Mediterranean of Pythagoras.

Based on a talk given at a meeting of Professor Sir George Pickering and the students attached to his 'firm', to all of whom I am grateful for their encouragement. My biggest debt is to Mr. Quinn of Balliol College Library, for his wonderful patience and helpfulness.

REFERENCES

¹ It has, for obvious reasons, not been possible to discuss all the passages in ancient writers which are relevant to our subject. Most of the sources are gathered together in PAULY-WISSOWA'S *Real-Encyclopädie der classischen Altertumswissenschaft*, s.v. 'Bohne'. Sir James Frazer's note on Pausanias, viii, 16, gives a useful survey of the most important sources, as does Jevons, in the Introduction to Plutarch's Roman Questions (to whom I owe the reference to the *Schola Salernitana*).

² *Life of Pythagoras*, viii, 34.

³ *de lib. educ.*, 17.

⁴ iv, 11, 4.

⁵ Diels, fr. 141.

⁶ 11, 277, 24.

⁷ *id.*, viii, 24.

⁸ *Origins of European Thought*, 2nd edn., Cambridge, 1954, 112ff. (Mr. Colin Hardie of Magdalen very kindly drew my attention to this book.)

⁹ PLUTARCH, *Moralia*, 635E.

¹⁰ PORPHYRY, *Life of Pythagoras*, 43.

¹¹ *Schola Salernitana*, ed. Moreau, Paris, 1625, 325ff.

¹² *loc. cit.*

¹³ 521; THEOPHRASTUS, *de causis plant.*, V, 15, 1.

¹⁴ CICERO, *de divinatione*, i, 30; PLINY, *loc. cit.*; DIOGENES LAERTIUS, viii, 24.

¹⁵ *Theol. or.*, xxvii, 10, 494.

¹⁶ Gallus, 18.

¹⁷ DIDYMUS on Geoponicon, ii, 35, 8.

¹⁸ Hippolytus, quoted in MAYOR'S note on Juvenal, *Sat.*, xv, 174.

¹⁹ The question is discussed, for example, in BURNET, *Early Greek Philosophy*, 4th edn., London, 1930, and KIRK and RAVEN, *Pre-Socratic Philosophers*, Cambridge, 1957.

²⁰ MCCARTHY, 'A Case of Favism', *Lancet*, 1955, i, 748. DISCOMBE, G. and MESTITZ, W., in *Brit. med. J.*, 1956, i, 1023, and MCPHEE, in *Am. J. Clin. Path.*, 1956, 26, 1287-302, report a British and several American cases respectively, but each patient described was wholly or partly of Mediterranean descent.

²¹ *Medicine*, Baltimore, 1941, 20, 229.

²² 'Il Favismo', Sassari, 1929.

²³ *Acta Haematologica*, Basel, 1957, 18, 3.

²⁴ SZEINBERG, SHEBA, ADAM and RAMOT, 1958, VII. *Congresso della Soc. Internaz. di Ematologia*, Rome, 206.

²⁵ SZEINBERG, SHEBA and ADAM, *Blood*, November 1958, 'Selective Occurrence of Glutathione Instability in the R.B.C.'s of the Various Jewish Tribes'. This paper gives references to related work by these and other workers.

²⁶ Moreau mentions that an old French saying when people are ill is 'florent fabae' — 'the beans are in blossom'. See ¹¹ above, p. 321 bis.

²⁷ Suidas, s.v. 'Pythagoras'; DIOGENES LAERTIUS, *Life of Pythagoras*, viii, 39.

²⁸ 191.

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