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THE CORRESPONDENCE OF CHARLES DARWIN 1873

From Felix Choice [1873?]¹

130 Newington | Causeway

To Mr Darwin

Dear Sir,

allow me to call your attention to the following remark in your new work.² in page 175 upon weeping, occur the following remark, "Tears are actually recognised as a sign of happiness; but we should require better evidence on this head than that of a passing voyager.

Now I can state from positive observation that weeping is as much a sign of happiness as laughing with some nervously sensitive people: my wife, and, Daughters³ all cry if I make them a present or take them to any place of amusement and I have known and seen.—numbers of other persons do the same. I could convince you of it, if you would give me five minutes audience. I am a bad correspondent, and have very little time to spare or I would write you a more detailed account of my observations in this matter

Yours Respectfully | Felix Choice

DAR 161: 145

¹ The year is conjectured from the fact that this letter is a response to *Expression*, which was published in November 1872 (Freeman 1977).

² Expression.

³ Choice's wife was Jane Choice; their daughters were Jane Emily and Jessie Choice.

From Francis Darwin [1873]

New University Club, | St. James's Street. S.W.

Dear Father

Klein says the water ought to be changed every day¹ I should think you might draw if off with a syphon, which Jim could rig up with glass tubing & indiarubber ditto— I found I could pour off a good deal of water by stretching a bit of gauze over the lip of the basin.



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I left a bit I used on the fern heap in Deadman's corner; but I should think the syphon wd be best--- Please tell G the Revalenta shop is shut today.² Klein says his discovery about toads' ova does not bear on pangenesis.3 I don't know why he said it was good for you.

Yr affec | Frank Darwin

Endorsement: 'F.D '73' DAR 274.1: 11

¹ Edward Emanuel Klein was a bacteriologist and histologist. The experiment has not been identified. Jim was Horace Darwin's nickname. ² Francis probably refers to George Howard Darwin. Revalenta was a mixture of lentil and barley meal,

sold as a health food (Hassall 1855, pp. 237-50).

³ The discovery has not been identified. For CD's hypothesis of pangenesis, see Variation 2: 357-404.

From Hermanus Hartogh Heijs van Zouteveen [1873?]¹

Translation (abbreviated) of some of my annotations on Darwin's "Expression in man and animals"2

p. 102, Chapter IV, "I am not aware that there is any evidence in favour of this view"3

I find in Prof. Hartings "Leerboek van de Grondbeginselen der Dierkunde" I); Deel II, Afdeeling 2, p. 248, that the arrectores, by which the feathers of the birds are erected, are *striped* muscles, like the voluntary.

1) Learning-book of the Principles of Zoology, vol. II, section 2, p. 248⁴

p. 104, Chapter IV. Origin of the Words for toad; they certainly in all European languages don't express the habit of swelling. Professor Juynbol⁵ in Delft (Holland) informs me, as follows:

The Baskian (Basque) apoa (toad) comes from apal, little, and hoa, to go. The Russian sjaba does not come from a root, signifying to swell In the Semitic languages I can find no root for toad, signifying to swell; all the words in these languages rather signify, something that springs around. The Javanese and Malaian languages also don't give words with the root to swell. As to the Romanic languages of Europe Prof. Juynbol quotes Dietz, Etymologisches Wörterbuch der Romanischen Sprachen, who says (in voce crapaud) "Crapaud" franz., provenç crapaut grapaut, catalan. gripan, limousinisch gropal. (für grapal) Kröte. Von crepare, das berstende? d.h. zum bersten sich blähende Thier? Allein warum als dann nicht deutlich crevaud? Richtiger leiten es andere vom Engl. to creep; zu erwähnen ist auch Picardisch crapeux, als adj. schmutzig franz. graisse crasse.

"Sapo" Spanisch, Portug. Kröte, nach Span. etymologen vom Griech. σήψ, σηπός art giftiger Schlangen oder Eidechsen, auch Latein. seps "Rospo" Italien. Kröte vielleicht zusammen hängend nat. raspo, rauh.

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"botta" Italien. Altfranz. *botte*, auch *boz* Kröte, ... scheint aus Deutscher wurzel in *bôzen*, stoßen, treiben, so das es das aufgetriebene Thier bezeichnete. Auch Span. *boto*, adj. *stümpf*⁶

I find in Webster's Dictionary of the Engl. language, last Edition that he derivates the English *toad* (and the names of that animal in Anglo-Saxon, Danish, Swedish) from the Islandian *lad*, dung.⁷

page 108, Chapt. IV. footnote 30. Is not Ichneumon the name of the *Egyptian* species of *Herpestes*?⁸

p. 116, Chapt. V. "To have his back up" Is it not rather derivated from the appearance of any angry cat, than from that of a hostile dog?

p. 121 "Grinning" in dogs. Can it not be a bad imitation of human laughter, as barking perhaps of speech?

p. 135 *Cynopith. niger.* I can, I believe, recognise the expression as one of pleasure It can be, that it is because I have read in your book it was one of pleasure, at the same time that I saw the engraving.⁹ It seems to me a bad kind of voluptuous laughter.

p. 202. Laughter Conferatur the speech of D^r Ewald Hecker 16 Aug. 72 in the meeting of German naturalists and physicians. You can find it in "Naturforscher" of October or Nov. 1872^{10}

p. 216. Origin of kissing. I have read but don't remember where, the origin of kissing was in the Roman women being not allowed to drink wine, and the husbands coming home ascertaining by kissing them, if they had not done so. Cannot be true because Homer mentions kissing, and he is older than the foundation of Rome.¹¹

p. 221 The Egyptians (old), when praying stretched their arms benched before them palms of hand above (see bad drawing here) expressing so the action of giving something to a person placed above us. I saw them in that position engraved on the walls of the old Temples in Egypt long the Nile. Remarked also that Arabs in Upper Egypt did not understand my shaking *no* and very little my nodding *yes*.

In *Tour du monde* some years ago I remarked an engraving representing praying Bouddhists in India. All had palms of the hands joined like we and fingers of one hand through interstices of fingers of other hand like we.¹²

I read in Lucretius, Lib. V. v. 1199—"Nec procumbere humi prostratum et pandere palmas"

"Ante Deum delubra" (se pietas est)¹³

Can this not be kneeling with upturned hands and joined palms? In Catholicism there is much of the old Roman religion in the forms, see beautiful novel of Charles Reade "the Cloister and the Hearth".¹⁴

In "Album der Natuur" 1856, p. 15 I find an engraving of a Babylonian basrelief, discovered by Layard, representing Jewish prisoners of War from Lachish (II Kings



3

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XVIII), found in the palace of Sennacherib in Kouyunjik.¹⁵ One of them is completely in our position of devotion and occupied in *dare manus*¹⁶ to signify his submission.

p. 249 "In such cases etc."¹⁷ The negro fights with his hard head, like a he-goat with his horns. I saw this summer in New York a white actor, who played for a negro, and made this gesture so comically, that the auditorium laughed and applauded violently. Can this not be origin of protrusion of head in fighting, like clenching fists only common to races who fight with fists.

p. 252 exposition of canine. I myself can expose voluntarily my left canine very strongly and involuntarily and unconsciously do so under very trifling emotions. On the right side, I cannot do it, but both canines together I can.

p. 256 Derivation of the word *scorn* in Websters dict. last ed.¹⁸ it is derivated from French écorner, escorner, escorne, deprive some one of his horns

p. 257 "Smear of soup on a man's beard" I believe it looks dirty because it remembers us saliva or mucus from the nose in a man's beard.

p. 259 Vomiting. The old director of the Gardens of acclimatation" of the Hague¹⁹ told me that a young giraffe, having broken his leg was killed and a peace of the meat sent to a family, saying it was meat of a stag. They eat it and find it very excellent, in the evening our director comes on a visit and tells the meat was not of a stag but of a giraffe. What is that asked a lady. The director explicates. "What that ugly yellow beast! exclaims the lady and begins vomiting very violently.

disgust of unusual food to be seen in the disgust of our Dutch people for horse-meat.

p. 266 The rubbing of the thumb against the fingers as an expression of impatience, does not seem to me so very peculiar. I often in myself remarked it, but chiefly the fifth, fourth (annular) and third (middle) finger, being rubbed against thumb with somewhat snapping movement. I explain it thus: under impatience there exists a desire of doing something, for that you must wait, and that you will do, when waiting is over. By this desire nerve force is already liberated and flows, not yet being used for the intended action, along accustomed channels and causes some useless movement. Now fingers are of the most used of all parts of body; channels to fingers are thus very accustomed channels In the same manner impatience is often expressed by drumming with the fingers on the table, trampling with the feet etc. Under impatience of *hearing* (not of doing) something association works and the gesture is still performed.

p. 277. *Question* at the end of Chapt XI. In the Far West of United States I repeatedly observed (1872) Indian women bearing her child on her back, bound on a peace of wood, making every movement very difficult. In some parts of the world the heads of the children are deformed by binding them between peaces of lumber²⁰ In how far can such habits, as impeaching movement, influence the signs of negation and affirmation, when they have realy the origin suspected by Darwin?

p 251 (Chapt X). Sardonic smile. Some derivate this expression from the Greek $\sigma\alpha$ (pew, to grin like a dog²¹ (Webster). By this is proved, that you are not the first,

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who remarked the resemblance between a Sardonic smile, discovering the canine in sneering (In Dutch we call it "den neus ophalen" to draw up the nose) and the snarling of a dog. This is prooved also by the French expressions *rire canin* and *spasme cynique* (Engl. *cynic spasm*" Italian *spasimo cinica*, Spanish *espasmo cinico*) and the German *Hundskrampf. Rire canin* is synonimous with *rire sardonique* ou *moqueur*²² (Dict. de Médécine, Littré et Robin).²³ Spasme cynique and the German *Hundskrampf* signify a spasmodic movement of the muscles of the cheek, by which the lips are drawn from another in such a manner, that the teeth are discovered (Littré et Robin ibid.) The muscle, by which sneering is effected (snarling muscle) has also the name of cynic muscle (*musculus caninus*). All from Latin *canis* a dog, Greek XUGW a dog.

p. 333., 334. Consciousness of a fault before God does not excite blushing. Conferatur Ezra as quoted p. 322^{24}

p. 336 Shakespeare may be defended because in darkness there exists no colour, because colour is not something inherent to the objects, but only vibrations of aether of a determined amplitude.²⁵ Where no aether is vibrating, there also is absolutely no colour. The blush of Julia could exist but hardly *bepaint* her cheek in darkness. The case is the same, as it appears to me, as in very dark-coloured races. I confess, my defence of Shakespeare is *very* spesious, but I say only *S. might* be defended I could say also: vibrating aether is not yet colour, colour is the *impression*, that the human of animal mind receives, from beams of vibrating aether broken in the eye.²⁶ Where no eye is present, that perceives, or where the present eye cannot perceive (for darkness or some other cause) there also is absolutely no colour

p. 365 "If man had breathed water by ext. branch". No animal breathes water, but only the air dissolved in the water

p. 367 specific or sub-specific unity of the several races. This would mean, as it appears to me, that all races *together* were *one* species or even *one* sub-species. You will apparently say: the belief, that the several varieties of man are *races* or *sub-species*, belonging altogether to *one* and the *same species*, and therefore *not* different species.

Three first chapters

p. 36. Reflex actions in decapitated frog. Conferantur the experiences of Brown Seq. and Charles Robin on decapitated men, Revue des deux Mondes 15 Janvier 1870 p. 399–402 and Fecquier, l'Année scientifique, 1869 p. 469; also on *goose*-skin as a reflex-action²⁷

p. 47, picking up of chickens started into action by the sense of hearing"²⁸

Conferantur experiences of D. A Spalding communicated by him in the British Association f. t. adv. of science. $^{29}\,$

AMem DAR 53.1: B44–9

CD ANNOTATION Top of letter: 'D^r. Hartogh Heys van Zouteveen'

¹ The year is conjectured from the references to *Expression*, which was published in November 1872 (Freeman 1977).

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- ² Hartogh Heijs van Zouteveen translated *Expression* into Dutch (Hartogh Heijs van Zouteveen trans. 1873).
- ³ Hartogh Heijs van Zouteveen refers to the view that the involuntary arrectores pili (hair-erecting) muscles had originally been voluntary (*Expression*, pp. 102–3).
- ⁴ Hartogh Heijs van Zouteveen refers to Pieter Harting and Harting 1862-74.
- ⁵ A. W. T. Juynbol.
- ⁶ Hartogh Heijs van Zouteveen refers to Friedrich Christian Diez and cites Diez 1869–70, 2: 267, 177, 59; 1: 78. *In voce*: evidently here means 'under the headword' (literally, 'in voice'). The text quoted may be translated:

"Crapaud" French, Provençal crapaut grapaut, Catalan gripan, Limousin gropal. (for grapal): toad. From crepare, the bursting, i.e. the animal that swells itself to bursting? Only then why not clearly crevaud? More properly it comes from the English to creep; ... also the Picard crapeux ought to be considered, as the adjective filthy... French. graisse crasse. "Sapo" Spanish, Portug toad, according to Spanish etymologists from the Greek.

- σήψ, σηπός a type of poisonous snake or lizard, also Latin. seps
 - "Rospo" Italian. Toad perhaps naturally going together with raspo, rough

"botta" Italian. Old French botte, also boz Toad, ... apparently from the German root

- bôzen, push, drive, so that it expresses the swollen animal. Also Span. boto, adj. blunt
- ⁷ The derivation that Hartogh Heijs van Zouteveen quotes is in Webster 1865. Islandian: i.e. Icelandic.
- ⁸ In *Expression*, p. 108 n. 30, CD cited Albert Günther's *Reptiles of British India* (Günther 1864, p. 340) on the destruction of cobras by 'the ichneumon or herpestes'. The common name ichneumon is usually applied to the Egyptian mongoose (*Herpestes ichneumon*).
- ⁹ In Expression, p. 135, CD commented that the expression of the Cynopithecus niger in the second figure on page 136 'would never be recognised by a stranger as one of pleasure'. Cynopithecus niger is now Macaca nigra, the Celebes crested macaque.
- ¹⁰ A meeting of the German society of naturalists and physicians was held in Leipzig from 12 to 18 August 1872 (*Tageblatt der 45. Versammlung deutscher Naturforscher und Aerzte in Leipzig*). Hecker's remarks on laughter are reported in *Der Naturforscher*, 26 October 1872, p. 352. In *Expression*, p. 202, CD wrote, 'The sound of laughter is produced by a deep inspiration followed by short, interrupted, spasmodic contractions of the chest, and especially of the diaphragm.' Hecker suggested that the spasmodic expirations of laughter were a reflexive compensatory mechanism to decrease the pressure on the brain resulting from the spasmodic stimulation of the nerves caused by tickling or comedy.
- ¹¹ See Aulus Gellius, Attic nights, 10: 23, and Homer, Odyssey, 16: 15, 17: 39, 13: 354.
- ¹² Tour du monde was an illustrated journal of travel published in Paris.
- ¹³ Lucretius, *De rerum natura*, 5.5.1199–202: 'and it is not piety to bow prostrate to the ground and spread out the hands before the temples of the gods.'
- ¹⁴ C. Reade 1861.
- ¹⁵ Album der Natuur (Album of nature) was a Dutch periodical. Austen Henry Layard excavated Nineveh, an ancient Assyrian city whose ruins are now near Mosul in Iraq (*DDNB*); Kouyunjik is one of the mound-ruins of Nineveh. Lachish was an ancient city in Canaan (now Israel).
- $^{16}\,$ Dare manus: literally, to give the hands, i.e. to submit (Latin).
- ¹⁷ 'This protrusion of the head and body seems a common gesture with the enraged; and I have noticed it with degraded English women whilst quarrelling violently in the streets. In such cases it may be presumed that neither party expects to receive a blow from the other' (*Expression*, pp. 248–9).
- ¹⁸ Webster 1865.
- ¹⁹ The Koninklijk Zoölogisch Botanisch Genootschap van Acclamatie (Royal Zoological–Botanical Society for Acclimatisation) founded the Koninklijke Zoölogisch-Botanische Tuin (Royal Zoological– Botanical Garden) in the Hague in 1863 (Baarsel 1998).
- ²⁰ Hartogh Heijs van Zouteveen may refer to the practice of head-binding among the Chinook people near the Columbia river in North America (see Greenwood 1865, 1: 14–15).
- 21 $\,$ satisfies and show the closed teeth (Liddell and Scott comps. 1996).

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- ²² Rire sardonique ou moqueur: sardonic or mocking laughter.
- ²³ Littré and Robin 1865 s.v. canin.
- ²⁴ In *Expression*, pp. 333–4, CD wrote, 'a man may be convinced that God witnesses all his actions, and he may feel deeply conscious of some fault and pray for forgiveness; but this will not, as a lady who is a great blusher believes, ever excite a blush.' On p. 322, he had cited Ezra 9.6: 'O, my God! I am ashamed, and blush to lift up my head to thee, my God.' *Conferatur*: is to be compared with (Latin).
- ²⁵ In *Expression*, p. 336, CD had quoted from William Shakespeare's *Romeo and Juliet*, 2: 2: 'Thou know'st the mask of night is on my face; | Else would a maiden blush bepaint my cheek, | For that which thou hast heard me speak to-night.'
- ²⁶ For more on theories of colour perception involving vibrations of the aether, see Cahan ed. 1993, pp. 224ff.
- ²⁷ Hartogh Heijs van Zouteveen cites pages from Lemattre 1870, where the experiments of Charles Édouard Brown-Séquard in irrigating with blood the muscles of the hand of a decapitated man, and the head of a decapitated dog, are discussed. Robin's observations of recently dead bodies, and attempt to repeat Brown-Sequard's experiment on a human head, are described in L'Année scientifique et industrielle (1869): 469–71. L'Année scientifique was published by Louis Figuier. Brown-Sequard and Robin had both noticed goose-flesh on revivified or recently dead corpses.
- ²⁸ In *Expression*, p. 47, CD wrote, 'the wonderful power which a chicken possesses only a few hours after being hatched, of picking up small particles of food, seems to be started into action through the sense of hearing; for with chickens hatched by artificial heat, a good observer found that "making a noise with the finger-nail against a board, in imitation of the hen-mother, first taught them to peck at their meat."
- ²⁹ Douglas Alexander Spalding had described his observations on the faculties of newly hatched chickens at the 1872 meeting of the British Association for the Advancement of Science (see Spalding 1872). He thought that his observations showed that much of their behaviour was instinctive.

From Stanley Haynes [1873?]¹

Observations on | The Expression of the Emotions | by D'. Stanley Haynes. $(F.R.G.S.)^2 \mid$ of Malvern Link

Page 30. Respecting calves sucking: dairy people have made similar remarks to me.³ When the secretion of milk has been retarded and an infant has been spoonfed until the breasts yield milk I have frequently been told of and have noticed the difficulty in getting the infant to suck.

P. 30. I have known the caterpillar of the privet hawk-moth (Sphinx Ligustri) to starve itself rather than feed upon another plant, devoured by other specimens: e.g. the larva from an almond tree has refused to feed upon the potato or privet, and vice versa. Similarly, the mulberry-reared silk-worm (Bombyx mori) will not eat the lettuce⁴

P. 34. If a person in a congregation cough during a sermon many others will imitate him.⁵ A clergyman, disturbed by a person who often originated series of coughs, is said to have stopped speaking and to have sent the offender a cough lozenge, with the effect of the remainder of his sermon being listened to without a sound from any one of his hearers. Shewing (P. 36) coughing can be entirely controlled by mental effort when there is no physical cause for it.⁶

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A relation of mine, now aged 28, used always to arrest her acts of sneezing until two years ago, since when she has sneezed naturally: from long repression of perfect sneezing she used to be unable to complete the act. Irritation of the Schneiderian membrane (lining the nose) by strong light, as a cause of sneezing, is much marked in some families, as in the males of mine.⁷

P. 41. The contraction of the iris, caused by bright light, is produced by reflex action from the retina, which would be injured by too great stimulation. It is a physiological necessity, independent of habit or of the will.

P. 42. Do not dogs turn round when lying down to sleep, in order to have their hair smooth and comfortable beneath them. I think stiff-haired dogs turn most.⁸

P. 44. I have noticed dogs shaking food they did not much relish or want, before eating it.

P. 45. Donkeys nibble each other more than horses do.⁹

P. 67. Healthy contractibility of muscles, when not in action, constitutes their "tone". Is not trembling from emotion due to excess of tone, from excited and superabundant nervous energy, with consequent intermittent relaxations? We notice similar trembling when muscles are faradized: if a person receive a strong current of electricity his muscles are convulsed.¹⁰ The reason why children, and some women, go into convulsions from emotions, instead of trembling, may be that their nervous systems are unrestrained and energetic. Trembling and convulsions are due to excessive nerve force. Cold to the surface causes trembling of muscles, independent of flow of nerve force, by producing direct contraction: ice applied to the limbs of a newly decapitated frog thus causes reflex motion

P.p. 69-70. Concerning pain. A parturient woman is a good example of the text.¹¹

P. 70. Does not irritation of a nerve cell generate nerve force because such generation is the function of the cell?; in precisely the same way as irritation of a gland causes flow of its secretion.¹²

P. 71. M^r. Spencer's and your remarks support the doctrine of correlation of forces, which is as much applicable to vital force as to heat and its modifications.¹³

P. 73. Perspiration during fear may be due to contraction of the skin squeezing out its moisture, the follicles being suddenly emptied of that which constitutes insensible perspiration in the natural condition. Dilatation of the capillaries from temporary paralysis of the sympathetic or vaso-motor system may be a subsequent cause.¹⁴

P. 77. Apprehension causes, inter alia, vesical irritability, well marked in students just expecting important examination. At such times I have experienced decided hot perspiration, limited to the palms.

P. 81 Expectation has decided influence on horses: e.g. when they are about to be saddled or harnessed they generally defæcate.

P. 85-86. Many dogs and cats express very various emotions by their voices.

P. 93. The laughter of man may be a rapidly reiterated series of sounds because it is the antithesis of his prolonged cry of pain or distress.¹⁵

P. 93. Some children, and even adults, stamp on the ground when angry or impatient $^{\rm 16}$

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P. 99. The "fantail" of New Zealand ruffles out its feathers, droops its wings and expands its tail when not afraid and in winter (therefore, when not actuated sexually): they are very gregarious, tame and playful and remind one of irate miniature turkey-cocks.¹⁷ I have seen cock greenfinches, and pigeons, when courting, exhibit their plumage in the same manner.

P. 101. Contraction of the skin and erection of hair or feathers caused by external cold or sensation of cold—as in ague fit—serves to keep the body warm by the interposition of non-conducting cuticular appendages and by the pores being so closed that heat does not escape so rapidly from the blood. It must be for this latter reason that the minute cutaneous hair muscles of man remain (p. 308.)¹⁸ The reason why a man, feeling cold, folds his arms to his sides, raises his shoulders and droops his neck may be that such movements may be inherited from the time when his distant progenitors had a dense covering of hair, when such actions would protect him from cold. Do monkeys, when cold, exhibit these movements. Dogs, cats and other animals curl themselves up when cold: so does a man when just got into a cold bed or when shivering during a bilious headache.

P. 108. I have known an English terrier to spring on grass snakes whenever he could and kill them as he would rats.

In Australia special legislation protects the Australian magpie, because it is a snake killer. I think the "laughing jackass" is another.¹⁹

P. 109 The rattle of the rattle snake, from your theory, ought to consist solely of modified cuticular structure.²⁰ Is it so? Maunder's "Treasury of Natural History"²¹ describes it as consisting of *bones*. An assertion therein (Edition 1849, p. 565) made is in favour of your theory—"all the remaining joints are so many extraneous bodies, as it were, or perfectly unconnected to the tail by any other means than their curious insertions into each other. These bony rings increase in number, with the age of the animal, and it is said that it acquires an additional one at each casting of the skin"

P. 111, 139, 144. I have frequently seen a student, during unexciting but interesting lectures, move his ears and scalp without moving the eyebrows: he seemed equally unconscious of the oddity and of the attention it created. I have noticed my left ear moving once or twice, but cannot do so voluntarily.

P. 121. Besides terriers I have seen a retriever grin.

P. 124. Is not the pressure down of the tail when animals fear anything behind them designed (perhaps unconsciously) for the protection of the genitals?

P. 144. I am able to move my scalp, but not without effort and raising of the eyebrows. Vide ante "p. 111".

155. In Auckland I have seen two Maori men, who I was told had evidently not met for some time, meet in the middle of a muddy street, sit and rub noses and weep profusely: after a short time they disappeared into a public house!²²

P. 200. A slightly amusing cause, when the mind has for some time been kept in a state of tension, as during a sermon, will cause uncontrollable laughter in some persons. In a drama containing pathetic incidents the supervention of a cheerful scene suffices to cause smiles in some, vigorous laughter in others.

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P. 206. See reference to p. 93.

P. 213. On paying a deserved compliment to a Maori he straightened himself, smiled, shewed his teeth and his eyes glistened with pleasure.

P. 215. Sexual emotions are excluded from consideration in your work, probably because it is intended for general reading and study.²³ The expression of them is characteristic, as a peculiar glitter of the eye and change of voice. No doubt you have observed other expressions.

P. 230. Some microscopists and myopes, who have used one eye too much, get into the habit of using it, more or less habitually; the unused eye is then rotated outwards: it is said this is because the external rectus is stronger than the internal.²⁴

P. 241. See reference to p. 67.

P. 253. Putting the arms "a-kimbo" is a manifestation of defiance.

P. 257. Contempt is also expressed by the application of the extended fingers to the nose, by vulgar English.

P. 261. Some persons quickly protrude and withdraw the tongue as an expression of contempt for the opinion of the person spoken to or of.

P. 271. When under the hands of dentists I have known patients place the open hands, one over the other, on the lower part of the body; and remember doing so myself. 25

P. 281. Persons having ptosis (drooping of the eyelids) raise their brows, causing an appearance of surprise.

P. 290. See reference to p. 73.

P. 292. Another symptom of terror is the firm contraction of the skin of the face on the facial bones, causing the face to resemble parchment contracted on a skull.

I have known a young almost unbroken cavalry horse, ridden for the first time with a scabbard, scream sweat, empty his bowels and bladder and soon become exhausted.

P. 294. Hindoos change colour from fear.²⁶

P. 303. Dilatation of my pupils was very marked after I had been frightened by a large dog instantaneously appearing and springing upon me in the dark. I recognized the dog as mine, but was too terrified to speak, although I tried; my mouth was dry and wide open, my teeth chattered for a long time after, preventing me from sleeping. I have seen dilatation of the pupils in a frightened kitten.²⁷

P. 308–309. See reference to p. 101.

P. 311. Blushing is perhaps most marked at puberty: notice the meeting of a boys' school with a girls'.

P. 343. Headaches are significant of disturbance of the vaso motor system: the dilatation of the capillaries explains the pain, the hyperaesthesia to light and sound and the indisposition for thought: a strong resolution or a necessity for action often arrests or mitigates these symptoms until activity is no longer required, when they recur. Lachrymation and salivation are often troublesome during headaches, and the temporal arteries throb, from the same cause.²⁸

P. 350. See references to pp. 67 and 73.