

# The Principles of Psychology

## Vol II

William James

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Light passes through the lens of an eye and projects the outside world upside down onto the retina. The retina consists of small receptors, the excitation of which presents the brain<sup>1</sup> with the information gathered by the sense of sight. To the modern reader there is not only the analogy of the camera, but also, denied to James and his contemporaries, that of the pixels of a digital picture, although admittedly the latter analogy is far from as precise as that of the former. The crude outlines from a philosophical point of view<sup>2</sup> were known since Berkeley, who elegantly disposed of the naive question why we do not see the world upside down<sup>3</sup>. The sensational information of sight is of course finite, and by simple considerations, we can in principle get a very good estimation of it<sup>4</sup>, especially the number of receptors. The resolution of the eye is limited, and I guess the most optimistic measure of its power of making spatial distinction is half a minute of arc<sup>5</sup>. From this we get an estimate of about 300 million receptors in one hemisphere of the globe of the eye (disregarding that our field of vision is actually larger than half a hemi-sphere, if admittedly not much; that part of the retina is void of receptors, and that the receptors are not necessarily evenly distributed) under the reasonable if simplistic assumption that two light-sources closer to each other than the lower limit resolution would be projected onto the same receptor. This incidentally also allows us to make an estimate of the ultimate number of pixels of a digital camera needed to make a faithful rendering<sup>6</sup>, namely around 20 million<sup>7</sup>. The upshot is that what the eye transmits to the brain is a two-dimensional

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<sup>1</sup> one may perhaps include the retina itself as part of the brain, thus the most exposed part of the same

<sup>2</sup> at the time not too different from the scientific view

<sup>3</sup> as if in the brain itself there would be a homonucleus looking at the retina!

<sup>4</sup> we are for the sake of argument neglecting the phenomenon of color

<sup>5</sup> well-known to astronomers, from whose point of view the question is both natural and correspondingly answerable

<sup>6</sup> This means that we are looking at the picture at a true perspective, not a blow-up of it. A typical small-format camera (24×36 mm frame) with a lens of focal length 50 mm, the actual view would be around 1/15 th of the area of a hemi-sphere.

<sup>7</sup> In practice the number would be significantly lower due to a more realistic sense of resolution, (and in fact most pictures suffer from not being optimally focused and somewhat fuzzy because of movement of the camera) suggesting that the commercial digital cameras are now getting as close to that ideal as would be reasonable. Traditional films are way beyond that information gathering capacity, as the silver-halids are of molecular dimensions; in practice though, due to the thickness of the emulsion, there are various scattering effects that leads to a serious diffusion. But nevertheless a traditional photographic image contains much more detail than discernable to the naked eye.

array of information, with no depth only directions. The parameter space of directions, as a mathematical abstraction, forms a (perfect) sphere, idealized by astronomers as the celestial sphere. Thus in a sense our visual view is not Euclidean but Spherical<sup>8</sup>, lines corresponding to great circles, angles adding up excessively, and with intrinsic units of length (although with various kinds of normalizations, the one of mathematicians being more natural than the prevalent ones of astronomers and surveyors)<sup>9</sup>. It is impossible for us to perceive the entire sphere of all directions, as the sensorial data is never presented to us in its totality<sup>10</sup>, but we can well imagine it, just as we can image things going beyond our back. But what we cannot imagine, except through mathematical formalism, are new directions. Our universe of directions remain finite yet without a boundary. A fact that we take for granted and usually never appreciate<sup>11</sup> as it is being overshadowed, not to say overwhelmed, by our conception of limitless depth. It is one thing to explain the eye, quite another thing to explain how sense-data ultimately results in conscious images, a meta-physical question as insoluble to us as to the idealist Berkeley, but technical aspects of it comes into the heading of psychology. And after this preamble, not to be found in James work, we can put his quests into perspective.

The first thing to understand is that our visual sense, as well as the other senses, are not naked sensations, but are interpreted and result of experience and education, leading to the concept of a so called percept(ion) out of which part is naked sensation coming from the outside but a lot of it is contributed by the brain itself. However, James is very adamant about thinking of perceptions not as compound things, but things in themselves, just as a thought is an irreducible entity of the brain, transcending its parts, and not reducible to those. In particular he rejects perception as a form of unconscious reasoning as a crude and useless metaphor at best. After a rather technical discussion of after-images and various phenomena of color contrasts, as actually being part of the retinal activity and not artefacts of the interpretation of the brain<sup>12</sup>, James embarks on one of his more ambitious chapters, namely our conception of space. As noted above, depth is not conveyed by the sensations engendered by the receptors of the retina, those reacting only to a two-dimensional projection. Our sense of depth nevertheless has a direct sensational quality to it, as long as we are endowed with binary vision. As is well-known the two

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<sup>8</sup> Thus the natural projection for (local) star-charts is the so called gnomonic projection from the center of the sphere to a plane.

<sup>9</sup> The intrinsic length is of course the angular extension. This is not entirely obvious. If a child or another uneducated human is asked about the size of say the moon, the natural answer would be some everyday object, like a coin or a plate, which does not make sense. Further reflection would involve the distance, leading to rather awkward descriptions

<sup>10</sup> This would involve spherical eyes placed in a transparent body? Stereoscopic vision is rare among mammals only had by primates, thus the two eyes provide complementary visions, rather than conflicting, and allows a far wider scope of extended vision

<sup>11</sup> I did not do so until just a few years ago, used as we are to look upon a sphere from the outside as embedded in ambient space, rather than intrinsically from the inside, although the latter is literally staring into our very eye(s).

<sup>12</sup> James quotes in great detail ingenious experiments conceived and performed by his hero Hering against the assertions by his adversary Helmholtz.

projections on the respective retinas differ, but yet the brain is able to form a single image from two disparate sets of information. How this is done is a puzzle to James, discarding the two standard explanations, referred to as 'the law of identical projection of images' and 'projection theory' respectively<sup>13</sup>. According to the first theory, our eyes converge to a point of focus, which would correspond to two corresponding receptors<sup>14</sup> while points outside would appear more or less distinctly double. But we never see double images, James, somewhat puzzlingly, asserts, except by rare accident or as a result of special education. But indeed it is simple to produce them<sup>15</sup>. If you focus at some object at a distance looking at your finger it appears double, and conversely if you focus on your finger, an exceedingly simple experiment to perform. Still James has a point, namely normally we never see double. On the other hand, according to the projection point of view, the parallax of the eyes are used to pinpoint each image at a specific distance, double vision (which James almost totally denied) would never be experienced. The point remains that the brain is able to use the parallax to generate a very palpable sense of distance, and this is achieved by geometric means alone, as the phenomenon of the stereoscope proves, in which any muscular sense of the degree of convergence of the eyes is overridden. The parallax phenomenon should only be felt at short distances, but curiously enough I have never seen any estimate on how far it could actually be used, the lower optical resolution of the eye setting an upper limit. Such estimates are of course entirely elementary to make, and in fact using the division of half a minute of arc referred to above, and 4 inches between the eyes, noticeable effects should be visible up to half a mile<sup>16</sup>. On the other hand if you look through binoculars, the sense of depth, due to the improved resolution, should be enhanced, but on the contrary the very opposite effect occurs. In addition to the parallax of binary vision there is the parallax generated by motion, and is it not this one, that actually accounts for our sense of space, especially depth, the latter thus being a derived notion. To this we also owe the familiarity of perspective cues, by which we can endow a flat picture with a sense of depth, a sensation different from and not as palpable as that of the stereoscopic sensation, still so deeply ingrained by our visual education that it can lead to the illusions of people drastically changing size in a room with a false perspective<sup>17</sup>. Thus the perspectival interpretation is so ingrained that it takes precedence over our conviction that humans do not drastically change their size! (We are

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<sup>13</sup> pages 224 and 228

<sup>14</sup> this theory clearly presupposes a 1-1 correspondence between receptors of both eyes, based on spatial positions. As the receptors are not uniformly spaced, nor the retinas forming parts of perfect spheres, a detailed inquiry of such a theory would lead into all kinds of complications, which we, however, need not concern ourselves with in a principal discussion.

<sup>15</sup> I recall spontaneously being able to generate double images as a very small child. In fact I can actually still vividly recall my first conscious expression of it, looking at some Mickey-Mouse figures my father had cut out of colored cardboards to amuse me; as well as being surprised that the sensation did not scare me.

<sup>16</sup> And strongly visible effects, corresponding to half a degree should be present up to thirty feet

<sup>17</sup> The principle behind the illusion should be clear, suffices it to point out that it only works when viewed from a specific vantage point, and hence most suitably exhibited, not in the flesh, but mediated by film, sticking to the same point of observation and allowing no interference by stereoscopic vision.

of course not talking about our intellectual conviction but our sensational, they are at variance, but unless exceptionally naive, we have no problems making the former override the latter, and it is from this overriding we derive the pleasure). From this discussion it appears puzzling that the art of perspective arose so late in the history of art<sup>18</sup> that it in fact was not present from the very start. To address this properly would necessitate an essay by itself, suffices it only to point out that depth is so ingrained in our conscious conception of space, that it is hard to think of it as a flat projection upon our visual sphere of directions. Furthermore the ice-age artists presented their pray vividly on the wall with appropriate foreshortening without any theories. The laws of perspective are invariably illustrated by the man-made artefacts of straight lines and right-angled blocks of buildings not available to primeordial man<sup>19</sup>. The mystery remains though, how do we really 'construct' our space. Kants notion of an *a priori* spatial categorization in Euclidean terms, remarkably not taken up by James, has come into disrepute after the discovery of non-Euclidean geometry. Unfairly so I would say. The mystery remains that although we can only conceive of a finite universe of directions, depth itself appears to us infinite, although in the mind we can only transverse an imaginary line a finite amount. It simply seems inconceivable to us that a line drawn away from us and indefinitely extended would eventually return (as it would of course do, would the universe be a huge 3-dimensional sphere, only verifiably empirically and not by pure reasoning). As a child the notion of a finite universe appeared very puzzling to me, because after all what was 'outside'. Surely something, if not of material significance at least of spatial. The fallacy, as I much later realised, was of always imagining a manifold embedded in ambient euclidean space (a realization triggered by learning the word 'ambient'). In fact our visual sphere does constitute a naturally occurring manifold not embedded<sup>20</sup>. The fact that I only realised this at a very mature age, testifies to the fact that the deeper significance of even very elementary mathematical facts may remain hidden to a professional mathematician.

According to many philosophers, sight is subservient to touch, the latter being a primary phenomenon, to which sight is but a guide and indicator of what to be expected. Thus our sense of space also has a very tactile aspect. In fact our sense of the position of our body is independant of sight and can in principle be derived from nerve-sensations emanating from our joints<sup>21</sup> thus even blind people should be able to make sense of space. There is an interesting problem for people equipped with both senses, namely to co-ordinate the two different versions. James notes that the hollow left by a removed tooth as felt by the

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<sup>18</sup> From a certain perspective, this actually constitutes the history of art, and consequently there has been no developement since the Renaissance!

<sup>19</sup> Most modern age children draw instinctively without conventions of perspective, no doubt out of an ambition to draw things as 'they are' not as 'they appear', in fact probably not being aware of the distinction. I myself although a crude draughtsman did use perspective from an early age, the only realistic explanation being that of unconscious emulation

<sup>20</sup> By fixing a uniform depth we make it of course embedded as a 2-dimensional sphere, but this notion is not an intrinsc feature of the visual sphere

<sup>21</sup> James discard the notion of muscular information as being too varied and diffuse, but reports that the relative positions of joints can provide the mind with surprisingly detailed spacial clues

tongue simply feels enormous, far bigger than visual inspection reveals<sup>22</sup> James observes that the visual and tactile co-ordination is very loose and can easily be unlearned and relearned, as testified by e.g. the ease with which we learn to perform in front of a mirror, shaving or tying a tie.

The charm of James does not so much lie in his ability to treat a subject conclusively, as his chapter on the conception of space indicates, but in his wealth of interesting and often surprising observations. As his approach to psychology is encyclopedical, it would be tedious to try and make a comprehensive survey, which would only serve as a very unsatisfactory abridgement of the real thing; so let me be content by presenting, without any ambition of coherence, a sample along with personal digressions.

First, as noted, our field of vision is actually larger than half a hemi-sphere, but our sensation of its periphery is actually quite different in kind, as we can only perceive objects in motion. The interesting point though is not that motion makes the object visible, because what we see is not an object moving, but only movement as such. Thus movement is a primary sensation, not one derived from changing positions over time<sup>23</sup>

As perception is to a large extent constructed there is naturally a temptation to isolate the component of naked sensation. As has been noted above James advises against such an attempt, a perception being essentially an irreducible object; however when viewing a familiar thing, like a landscape or a face, from an unusual vantage-point, say from upside down; many strange features, hitherto un-noticed come to the fore<sup>24</sup>. As a further example in the auditory realm, we all have had the experience of hearing some words spoken, but not paying attention to them immediately, only in retrospect. The perception is profoundly different, even if the sensationary basis is the same. In the first case there was no understanding just sound, in the second case a message. Just so, James explains, we are aware of many features of foreign languages to which native speakers are completely deaf. In particular its melodious aspects, whether the language as such is 'beautiful' or not<sup>25</sup>. With languages we know intimately, and I believe, contrary to all talk about multi-

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<sup>22</sup> Similarly James records people who born blind have been given sight, and their problems of relating their purely tactile sense of space with their newly acquired visual. Among other things the subjects of the involuntary experiment reported that things appeared very different in size from what they had expected, and that they were often unable to recognise visually items with which they had had intimate tactile experience. This is extremely interesting and one regrets that the author has so little further detail to offer.

<sup>23</sup> This does not of course contradict the standard explanation of movement as change of position, which no doubt furnishes the basis of any neurological explanation of the perception of motion. What we have here is yet another version of what James repeatedly inveighs against as the 'psychologists fallacy', namely to impute to the content of a thought a theoretical analysis of the same. We sense 'motion' not 'movement of an object'. We see the smile of the Chesire cat without the cat itself.

<sup>24</sup> I believe that most children have performed such experiments spontaneously, being amazed by the freshness of view, no doubt feeling that this is a much better way of looking at things. Novelty always has charm, be it necessarily of an ephemeral nature

<sup>25</sup> How many Dutch or Arab speakers are aware how harsh and jarring their mother-tongues appear to the uneducated ear. Similarly, the faces of foreign races seem very uniform to us, as we are able to see the generic, while with those we are thoroughly familiar, we cannot go beyond the individual, in other words, meaning takes precedence over form.

linguality, their numbers are limited to one, possibly in exceptional cases two<sup>26</sup>, we are unable to divorce sound from meaning. Language is auditory, even if we may spend more time reading than listening. Exceptional indeed is the person to whom words primarily conjures up a visual image rather than an auditory. This was brought home to me once in a startling way when I typed 'use' instead of 'youth' in a letter. Thus clearly the word is being subconsciously sounded in the mind before being executed on the keys, how otherwise would such an egrarious confusion come about, there being almost no visual resemblance between the printed words<sup>27</sup>. Recalling that language is instinctively learned through the ear, reading and writing being a very late cultural addition<sup>28</sup>. The difficulty a foreigner encounters in trying to memorize Chinese characters, no doubt also derives from the absence of an auditorial crutch and the almost exclusive reliance on visual cues, so unnatural to language<sup>29</sup>. Vision and hearing are the only senses conveying symbolic information<sup>30</sup> the former by education the latter almost instinctively. When we as practised readers read a page the visual appearance as such is almost negligible, the meaning of what we read takes such precedence that we often fail to see typos<sup>31</sup>. But nevertheless I suspect that our visual tolerance is far less forgiving than our oral. When listening to daily speech we miss much of the information but we are quickly able to interpolate. In a foreign language this ability is impaired, as James notes, and I guess when a certain threshold has not been reached, the mind loses its ability to interpolate connectively, and we lose the thread and everything becomes gibberish. This is why we may watch foreign films and understand nothing, and then after some practice understand almost everything, the transition being abrupt as in the nature of a phase shift. But we are far more tolerant towards variations of pronunciations and accents than orthography, this not just being a convention but although we may decipher variances of spellings (as in writing English as it really sounds) it is a deciphering and consequently the speed of reading goes markedly down and becomes much more tiring. Also if letters and words would be missing, it too would slow things down. When listening to speech we have to adjust to the speed of the talker, while reading we stick to our preferred speed and if we are forced to read at a quicker pace, we invariably fall behind. All this testifies in my opinion to the fact that vision is an adopted medium for symbolic manipulation. Nevertheless some of us still prefer to read and write to listen and talk<sup>32</sup>. Finally I found the case of musical notation

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<sup>26</sup> James takes as an example German, in which he no doubt was fluently competent, having spent many years of study, and probably conducting most of his scientific reading in that language. His 'principles of psychology' is studded with untranslated German quotations. Yet he makes no bones about his basic unfamiliarity

<sup>27</sup> On page 519 James remarks on his experience of writing, how 'the words chime on my mental ear, as it were before I write them, but not on my mental eye or hand'

<sup>28</sup> Recall the difficulties many children have in learning those basic skills, some of which persist into adulthood being labeled as dyslexia

<sup>29</sup> The road to literacy is slow and tortuous to the Oriental child. It is noteworthy that the rate at which new characters can be assimilated is far slower than that which characterize acquisition of vocabulary

<sup>30</sup> I am of course neglecting the case of braille only used by the blind

<sup>31</sup> A perfect proof-reader should not know the language or read backwards

<sup>32</sup> The difference between listening and talking appears far less than between reading and writing. In

intriguing. This is a subject not touched upon by James, but one which I find relevant to the digression above, and also to what will follow below. In principle while looking at a musical score we should hear the music, just as when we read a text we hear (more or less consciously) the words and definitely have it come to life as stories. Some people can do exactly that with musical scores, but as I understand the ability is very rare. And only a handful of people, the likes of Beethoven and Mozart, composed directly by the pen<sup>33</sup>. Yet even in their case the musical score was not a substitute for the real thing, deafness to Beethoven was a tragedy, although it did not impair his musical ability. On the other hand the ability to automatically convert the musical notation to mechanical movements appear trivial in comparison, just like reading and writing, a consequence of determined practice. Furthermore musical notation is graphic with a fairly natural correspondence to sounds. Thus the beauty of a piece of music should also be reflected in the visual beauty of the score; something we cannot expect at all from a written page. I have always wondered but have never seen the matter discussed<sup>34</sup>. Most likely there is none whatsoever, and to somebody to which the music comes alive, the ability to appreciate visual beauty concomitantly is lost, just as the native speaker is deaf to the melodious peculiarities of his own language.

Nevertheless most of us consider sight our most precious sense, the one whose loss we would be least able to tolerate<sup>35</sup>. Sight also constitute the bulk of the sensory information we receive. We expect visual memories to be the most vivid of all memories, in fact most of us cannot imagine memory without a visual components. The phenomenon of a visual imagination is very puzzling, and I remember being puzzled by it since early childhood. We see, but yet we do not see. We are aware of seeing, just as we may be aware of movement without anything moving. Having our eyes open or not does not make a difference. Being bombarded by the usual flow of visual sensory may be distracting but not interfering. James does treat some aspects of the phenomenon, mostly by citing others before him, like Fencher<sup>36</sup> and the busybody Francis Galton, but seems to confuse it (along with many writers on the subject) with something else far less basic, namely

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principle anybody who can listen can talk, in fact we also cannot talk properly unless we get a continuous feedback of what we say. Also for obvious reasons we talk on the average as fast as we listen; while we usually write far more slowly than we read. Also most literate people read a lot (even if only trash) while for but a few writing is an effort only sporadically engaged in. Many people can chatter away engagingly, but when forced to put things down on paper, everything wilts. In fact in certain language cultures, like the French, writing is meant only for the highly educated.

<sup>33</sup> I remember vividly our teacher of musicology at school (no instruction in instrumental music, just the ambition of imputing some rudimentary musical culture) referring to a statement of Mozart to the effect that all music exists, it is only a question of writing it down, giving to me the image of the composer busily scribbling down notes on paper under the pressure of catching as much of it flowing by during his brief life

<sup>34</sup> Except, I recall, in Manns Doktor Faustus, although I have forgotten the conclusion if any

<sup>35</sup> Being deaf seems almost a trivial calamity in comparison, although one should be wary of underestimating the loss, even among those to whom music is nothing, because human contact is mediated more by sound than by vision. As to the loss of touch, that is a worry that very few of us entertain.

<sup>36</sup> In 'Mindsight' the philosopher McGinn quotes his colleague Wittgenstein to the effect that one cannot simultaneously look at a thing and have an image of it at the same time. In James, starting on the last

that of conjuring up an image. When it comes to conjuring up images people vary a great deal as to their capacity for supplying vivid details. Reading through it one is struck by the paucity of the reported experiences in general. Galton concludes, and James concurs later on in the book, that scientific men are not visually imaginative, explaining it by their propensity for abstract thought<sup>37</sup>. James also modestly (if, in view of the above, somewhat disingeniously) refers to his own visual limitations throughout the volume. I personally believe this to be pretentious nonsense. If the exalted reference to abstract thought should have any content, such people should be able to visualize say a generic color without any reference to a specific one. If I am reminded of somebody I know, I cannot help forming an image of him. That image is involuntary and not the act of a wilful effort. It may be very vivid and give the impression of the person, without supplying any details. On the other hand if asked to imagine a person and supplying as many details as possible, the effort may disintegrate the image. This makes me suspect that those who claim that they are unable to visualize refer excusively to this kind of exercise and are unaware of they constantly forming visual impressions, the act being so natural that they simple do not notice it. As James writes

*A person whose visual imagination is strong finds it hard to understand how those without this faculty can think at all*

Indeed they do. Once again the phenomenon of an imagination-image has nothing to do with imagination acrobatics. The task of visually moving along intricate 3-dimensional figures or commit to memory the precise contents of a page or playing chess blindfolded is indeed acrobatics, not a matter of having an image, but to be able to manipulate it. A common test in psychology I imagine, is to be told to look at a picture and then be asked to answer questions about it. With practice and anticipation you may well improve your ability, but then it would sidestep the real issue, which is the one of so called photographic image, in which you retain and can call up, almost all the visual information you have received, and scan it for genuine discovery. Conventional wisdom holds that the image you form contains no information you have not put into it. The mystery of an imagined image is that it gives the impression to contain much more information than it actually has. Using the same simile that have been used above in a slightly different context. You can see the smile of the cat, without actually seeing the cat. The essential sense of a smile is conveyed, without a single supporting detail. Thus if you are ordered to imagine the cat, the smile will disappear<sup>38</sup>.

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sentence of the footnote on page 50, there is a reference to Fencher about the impossibility of attending to both after-image and imagination-image at once, even when they are of the same object and may be expected to combine. The bulk of that lengthy footnote is devoted to the differences between an after-image (for which we can substitute the real image) and an imagination-image, implicitly defining the content of the latter concept.

<sup>37</sup> In fact on p.457 in discussing propensity to emotion, he remarks it is better for a man of thought not to have too strong a visualizing power lest his train of meditation be disturbed

<sup>38</sup> We are in particular referring to the recognition of faces, something we seem to be able to do in our mind, without the support of detail. The process of imagining, say the contours of the continents, is something different, when long familiarity has taught us the details necessary to reconstruct



Going beyond forming perception of things and space is the task of forming a perception of reality itself, this being one of the fundamental philosophical questions. James choses not to address it as a philosopher, whose task it is to transcend his limitations and get to real truth, whatever that might be; but as a psychologist, and thus his analysis is bound to be distastefully pragmatic and circular to the committed seeker of knowledge. In fact, while James may strike most psychologists as too philosophical, philosophers will find his philosophical excursions too pragmatic and instrumental, but this would be the subject of another essay<sup>39</sup>.

What is reality? Naively (and to some extent ultimately) it is what our sensations tell us. But everybody have dreams, and some people have hallucinations. James refers to a basic separation between sensations and imaginations, which allows us to instinctively make the distinction between reality and fabrication. A distinction we supposedly deep down make even when we are dreaming, and a distinction crucial to our survival as organisms. James technical knowledge of the workings of the brain are by modern standards (as to be expected) deficient, but his principal understanding in terms of chains of connections of nodes still seems sound. In those terms he explains the mystery of a hallucination as a premature stoppage of a normal chain of nerve associations, lending to a preliminary state a vividness perceived as a bona-fide association. But to return to the crux of the matter.

The basis of all our belief is our conviction of our own existence (was that not the starting point of Descartes ascent out of doubt his *cogito ergo sum*<sup>40</sup>) and we confer reality to whatever interests us as having an intimate and continous connection to ourselves. In fact James writes

*As a rule we believe as much as we can. We would believe everything if we only could.*

To the savage and the child to whom objects are represented quite unsystematically and thus conflict little with each other, almost anything is embraced by belief. It is only when we build up a more systematic picture that contradictions appear and we need to let each new thing run the gauntlet of what is previously believed before being accepted<sup>41</sup>. Of course a new thing can dispel something already accepted, but only if it ultimately reduces to a sensation even more vivid. The same goes for science, concepts need ultimately to have sensible effects to be included in the edifice of knowledge. Yet concepts are necessary in science (as in everyday life) to make sense of sensations. Thus we have the strange state of affairs

*in which appearances needs the reality in order to exist, but the reality needs the appearances in order to be known*

. Ultimately the Will and the Belief, in the sense of constituting a special relation between an object and the Self are *psychologically* the same thing. This is of course paradoxical, because after all objects of our will depend on our thoughts, while those

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<sup>39</sup> See 'On Pragmatism'

<sup>40</sup> The imperative nature of which, somewhat dulled to us, not intimately involved with Latin

<sup>41</sup> This according to James explains the sense of reality of dreams; our attention is focused on it, no conflicting sensations are admitted until we wake up

of belief are independent upon them. But emotionally there is no distinction, we will existence of an object, whether it will be realised or not depends on nature. Thus the practical distinction between objects we may will and those we can merely believe or disbelieve stems not from psychology but from physiology (Nature cannot change the past and future to suit our wishes, as James points out, but it can change our bodies to suit our thinking.)

A child enters more intimately with the sensual world around it than us adults, whose ripening of reflection loosen the ties and make us act more as strangers to it although we know it much better. But let the old joy arise again, and with the expansive mood the warmth of yore returns and we feel young again. Belief is thus a matter of appropriation, of making things our own, part of our reality, that we create as we create a home. As such it is dependent upon our wishes. A disbelief in the reality of material bodies, i.e. an idealistic philosophy, if anything a fruit of sustained reflection, is not that uncommon; but James, asserts, a disbelief in other minds is essentially an impossibility, so strong are our social natures. In fact I suggest that this may explain the paradoxical effect of solipsism, whose essence is a disbelief in other minds; that it creates a terrible sense of loneliness, and the world ostensibly completely of your own fabrication ceases to be your own but belong to the creatures imagined in it, and you are shut out of it<sup>42</sup>, thus in the end producing the effect of denying existence not to the outside world but you yourself, as part of it . A similar pathological condition occurs in depression, when the world goes cold and old interests wilt, and patients complain that there is a sheet of rubber between them and the world. In the absence of a strong intelligence to control this state of indifference, James admonishes, everything will be lost that was possessed, reality will simply retreat and fade away, leaving nothing but a dried up heart, a terrible loneliness, and no option but suicide or a permanent imprisonment into the deeper caves of insanity. In short reality depends upon our intensity of sensation, which incidentally points to the reality of religious experience, touched but briefly in this work (and thus but by this mention in this essay) but of deep concern to James himself as testified by his work on the subject.

Finally the question of what is real or not, may be clear to the naive mind, but not quite so to the philosopher. From the above it should be clear that a story that is told to us holds our interest when we are led to believe it is true, but in most cases quickly loses its claim to our attention, once we realise it is but a fabrication. In the same way a scientific fact, no matter how exciting, falls flat once we are told it is false<sup>43</sup> Yet, this is somehow not quite true. Some stories hold our attention even if we know that they are not true; in fact they are so vivid that we attend to them more assiduously than many a true story. They so to speak create their own reality. It may be a reality of another form, maybe not so literal and tangible as that of more mundane phenomena; but the very fact that it appeals so much to our interests and connects with our lives, makes it adamant to include it into the charmed circle of our reality; and the kind of contradictions it may incur

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<sup>42</sup> Something similar, but of course firmly compartmentalized, must strike the truly inventive novelist

<sup>43</sup> Kant holds that the fact of being real or not is not part of an intrinsic attribute of a thing (Compare the most elegant proof of Gods existence, at least in my opinion. God is the perfect being. Existence is part of the attribute of being perfect), but something extrinsic. An object, a scientific theory or what not, loses nothing of its character, its vividness, by not existing.

can be avoided by making suitable caveats. Another kind of story, but in many effects similar to this, is the kind of story engendered by mathematics. On such matters James is silent, but it fits beautifully into his scheme. The objects of mathematics are ideal, their numbers often infinite, and thus unsuitable to the kind of tangible reality of the practical mind. But do they exist, except as dim abstractions, provisional hypotheses, manners of thinking, formal constructs? They create their own reality, their own truth, by virtue of their consistency, and are as such created in the same way as our more naive and mundane reality. The fact that they go beyond the reach of our own will, although by some considered born out of it, confirm their independence. If attended to by passion (and as James points out *To conceive with passion is eo ipso to confirm*), becoming part of our interest and bearing a continuous relation to ourselves, they assume a kind of palpability rivaling that of those within usual touch. In fact intrinsically there is no difference between the manipulation by our hands and that of our thoughts as long as the objects are not conforming to our wishes but return independently. Yet we are but humans, psychological creatures, and the ultimate sense of reality is anchored in our self and the sensations that define it. Thus even if the links between abstract mathematical reality and down-to-earth sensation may be tenuous, they are many and multifarious. The digression on mathematics naturally leads to the psychology of reasoning, which forms yet another fascinating chapter in James.

First there is an apparent paradox. Can there be a theory of reasoning, because if so would it not provide a short-cut to the act of reasoning itself<sup>44</sup>? A theory of reasoning has to be both illuminating, otherwise it would be no theory, yet sufficiently vague as to provide no clues to reasoning itself, because if so it would undercut what it purports to explain. Can such a thing be effected at all? James proposes one with the dual virtue of great simplicity and illumination, yet without giving the game away. Ostensibly it picks out of reasoning exactly those features that convince us that a dog, no matter how clever and logical, does not engage in reasoning at all<sup>45</sup>.

A dog obey commands, and in fact occasionally exhibit behaviour suggestive of reasoning, as there will be no dearth of proud and observant owners to report. In the case of a dog there are a number of implications of the type  $S \rightarrow P$  where  $S$  is a given fact and  $P$  some desired aim. Those implications have been learned by experience, and are henceforth exploited whenever the opportunity arises. In short a dog can handle things that have been precedent, but the very essence of reasoning, James reminds us, is to be able to handle the unprecedented. A fact or a thing  $S$  is many things, in fact for all intents and purposes an infinite number. James take the example of the white piece of paper in front of him and on which he writes this very words. But this paper is not just a writing material, it is also combustible, made in America, six inches by eight and white, as well as one of the things within a stones throw of his neighbours garden etc<sup>46</sup>. The structure of reasoning is to out of the multifarious essences of a thing to select the one, call it  $M$  that has relevance

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<sup>44</sup> In modern parlance, providing the analogue of a universal Turing machine

<sup>45</sup> In fact the chapter in James is lifted from an earlier article of his with the title of 'Brute and Human Intellect

<sup>46</sup> To which we can add 'being an example of illustration of the above principle'

to our purpose  $P$ . In fact the aspect  $M$  that forces  $P$  as a more or less immediate effect<sup>47</sup>. The fact that we can draw inferences at all is due to the case of the logical construction of the universe, would there be no connection between things, reasoning would of course be impossible. Thus the great mystery, and which assures that this theory provides no instruction of reasoning, only its elucidation (at least for the specific purpose now at stake), is how to select the particular aspect  $M$ <sup>48</sup>. An act of genius typically consists of a proper selection of  $M$ , to derive the appropriate implications, is something else, often trivial, or at least apparent to all and sundry. In a less exalted setting I would like to dwell on some aspects of mathematical reasoning. The solution of a mathematical problem will to the ordinary student only provide a rigid template to instruct him how to deal with others of the kind; while to the mathematically gifted, it will be suggestive and stir his imagination, employing an implicit principle, whose explicit formulation he most likely will not be aware, to tackle similar but not identical problems in the future. In other words, although he will be presented with the same ostensible procedure, he will sense what it really is all about. As noted such selections may not be explicit, hence in their generality, as opposed to particular manifestations, not communicable. Because after all, the ability to select is the great mystery. To that effect James speaks about two kinds of associations, those by contiguity, in which each association is called up by a previous, and those by similarity, in which the mind is able to simultaneously hold many associations at the same time, and thus be led to see what unites them all. To brutes, only the first kind is available. In this context James draws a distinction between the master of analysis - the scientist, and the master of intuition - the artist. In both the ability to extract surprising aspects (the property  $M$ ) is greatly enhanced (through the analysis of similarity), but while in the man of science, the process is tailored to the logical purpose ( $P$ ), the artist may be so enamoured by the richness and unexpectedness of the particular essence he discovers, that he goes no further. Thus James cautions, that although at first sight the analytic mind may seem to represent a higher intellectual stage compared to the seemingly arrested development of the intuitive, one should be wary to jump at such conclusions. The scientific mind may simply be lacking in certain emotional sensibilities and thus not tempted into distraction. Furthermore James holds that the conjunction of the analytic with the intuitive is rare indeed<sup>49</sup> and offers as the only exceptions Plato and M.Taine. In an aside he addresses the assertion that Shakespeare possessed more intellectual power than any one else that ever lived<sup>50</sup>. He does not explicitly deny the claim, reminding the reader of the often abrupt transitions to be found delighting the reader both by their unexpectedness as well by their fitness. Still suggesting that while the mind of Shakespeare supplied the means, it probably never informed him why they were so effective.

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<sup>47</sup> James suggests that the great success of quantitative reasoning in physics is due to the fact that the essences so substracted are so simple as to make their conclusions immediate

<sup>48</sup> The idea of abstraction is legion in mathematics. I in particular recall a passage in Rudins Complex and Real Analysis to the effect that measure-theory is simpler in the general setting of locally compact spaces, rather than in the case of  $R^n$  although that might be of our most immediate concern, because the latter contains so many extraneous properties which only get in our way.

<sup>49</sup> indicating that Snows diction about the separateness of the two cultures has many precursors

<sup>50</sup> He attributes the saying to 'an oft-quoted' writer. Could it have been Hazlit he had in mind?

As noted above the mind of the dog knows only of the contiguous implication, and his repertoire of such may be quite limited. A few commands and by each it knows what is expected of it. Language is a matter of signs, and commands are of course part of it, but that does not mean that the dog understands language, in order for it to do so it needs to out of its limited experience of signs, abstract a general principle (once again out of the experience  $S$  extract the hidden essence  $M$ ) namely that of assigning signs, in fact making the distinction (which is a crucial element of extraction) of the sign and the signified, something that is probably inseparably fused in its mind. Not so in the mind of the child, who invariably catches on, without ever being instructed (how could such a thing ever be instructed?). Once it has caught on it wants to provide a sign for everything and its development of language is explosive. Thus as far as language acquisition is concerned, every child has the gift to heed a suggestion and sense an inner unarticulated essence, in the same way as the mathematically gifted child has the ability to grasp what it is all about when mathematics is concerned.

The difference between a muddle-headed and a genius is less than one thinks, James explains, because confusion is only possible where there is reasoning. A dog is never confused, at least not in any developed sense, because confusion is a matter of reasoning gone astray, of coming up with hidden essences although inappropriate ones. Thus both arise out of the same temperament.

Naturally the precise workings of reasoning is not one of conscious awareness. Too often the various steps are elided in the mind, making it very hard for the expert to explain to the neophyte. In fact the art of skipping is crucial to all discourse, and the pleasure we take in a conversation, James remarks, are proportional to abridgement and elision and in inverse ratio to the need of an explicit statement.

To continue and treat all the chapters in James with the same thoroughness would be time-consuming, maybe even a little bit tedious, so let me conclude by saying a few words on James thoughts on instinct and will, skipping the lengthy discourse on hypnosis, so fashionable at the time, and finally briefly touch upon his opinions on science.

As to instincts James points out that Man has no fewer instincts than the lower animals, on the contrary he has more and more varied, often with contradictory effects<sup>51</sup>; blind they are as well as those of the primitives, but man being equipped with memory, blindness of instinct is not preserved by repetition. As to an example of instinct the author refers to a chicken that as it is hatched follows and gets attached to the first moving object it sees, and after that is unable to form any new attachment<sup>52</sup>. Clearly certain instincts have a very narrow window of opportunity to act, in human this goes in particular in education. James speculates that a boy isolated from any contacts with sports, like playing ball, rowing, sailing, riding, skating, fishing or shooting (the long list reproduced to give the reader the tenor of his age) will probably be doomed to a sedentary life, because when presented with the opportunities as an adult he will shirk the effort<sup>53</sup>. More seriously

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<sup>51</sup> Reason does not inhibit instinct, James writes, but it may excite a contradictory instinct

<sup>52</sup> This is clearly an instance of Lorenz imprinting, to which that author devoted so much attention

<sup>53</sup> I have heard that if you do not learn to bicycle by a certain age, you will never be able to. It has the ring of truth except of course that it would mean that the original inventors of bicycles never rode them, which on the other hand seems rather unlikely.

James holds that the ideas gained before the age of twenty-five will practically be the only ideas (at least outside their own chosen business) they will ever have. Thus it is of crucial importance that those plastic days of instinctive curiosity and disinterested interest are not wasted. Also, he surmises that college students would acquire a more earnest temper would they be cured of their belief in unlimited future intellectual potentialities and realise that whatever they now learn will for better or worse serve them to the end. This is very interesting in view of the fact that nowadays education tends to be postponed, what is not picked up may be compensated later, after all the new fashion is that of life-long learning. Of course there is life-long learning as any intellectual can testify, but in fact that life-long learning actually, as James indicates, is in the nature of elaborating on themes already planted in youth. Someone not captivated by mathematics, or showing any competence in it before twenty, will assuredly not strike out at forty.

James concludes the chapter by listing the most important instincts, admitting that it is hard to draw the separating lines, and the discussion henceforth does not attain his highest level. He notes that the fear and ferocity (the most energetic ones along lust and anger) are very closely related, after all, when confronted with a mortal foe, the contradictory instincts of fleeing and fighting (to kill) compete with each other. He also notes that in contemporary society it is possible for large numbers of people never ever to experience genuine fear, to which he attributes the presence of so much blindly optimistic religion and philosophy. As an aside he classifies the paralysing fear of height as a pathological instinct in view of the fact that few animals are as anatomically adapted as men for climbing about high places<sup>54</sup>. Finally as to the sexual impulse, this is clearly the most characteristic instinct, in terms of being blind, automatic and untaught. Yet he notes, its inhibition is quite easy, as our instinct for the integrities of our own bodies, and the revulsion we feel towards others<sup>55</sup> is the more basic one, only exceptionally overridden. This is testified both by the great number of lives spent in celibacy (presumably by forming habits of chastity during the critical phase in life) and the prevalence of monogamy, showing that once the object of the instinct is attained, habit closes down the possibility of renewal. As to the subject of homosexuality, James is so disgusted that he not even refers to it by name, only vaguely alluding to the fondness of the ancients and modern Orientals [sic] for unnatural vices, and as far as his own time and culture, as a pathological aberrations limited to certain individuals. To him the standard medically explanation of it being an early perversion of the basic instinct is completely uncontroversial deserving no elaboration.

As to the general phenomenon of will, it is what results in action, which in practice involves muscle movement. James very much takes exception to the notion of a special will-force, or that there is a feeling of innervation<sup>56</sup>, i.e. a conscious feeling of motor-discharge. This is not only not borne out by introspection but on principal grounds unnecessary, as

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<sup>54</sup> From this, and from other stray comments in the texts, one suspects that James himself suffered from it. One instance being p 457 when he refers to the 'well-known all-overish feeling' we get when a friend walks close to a precipice even when we know that he is perfectly safe and has no imagination of his falling. The feeling is known to me, although I would describe it more locally felt (in fact as an unpleasant tickling of the testicles), but I have never seen such feelings referred to in print elsewhere.

<sup>55</sup> James points out that the residual warmth of a newly vacated chair is disgusting to us

<sup>56</sup> *Inervationsgefühl* proposed by German psychologists like Bain, Helmholtz, Mach and Wundt

*It is a general principle in Psychology that consciousness deserts all processes where it can no longer be of use*

. All what is needed is a mental cue with a unique effect, and the less consciousness meddles with the process the better, if you want to shoot at a target, think of it, rather than of the hand about to pull the trigger<sup>57</sup>. A muscular action once performed produces a kind of memory that is called forth. James offers as speculation in one of his copious footnotes that the reason we may not be able to voluntarily exercise those muscles, like those of the intestines, may be because we have no memory of them being exercised.

The act of the will is to pay attention to a thought, whether it will result in action depends on whether it will be obstructed by contrary impulses. If no such arise, as is the most common case, thought and act are one, as if automatically joined, and as an example James quotes being in conversation after dinner and reaching for nuts. But decision may be postponed if the inhibition prevails. For people of authority, forced to take many decisions, a kind of habit follows, based on a prior classification of cases into which each decision to be taken is more or less automatically shelved, greatly facilitating the process. People of an impulsive nature prone to quick decisions, do indeed give an impression of energy and vitality: while those more habitually prone to indecision suffer from the effort indeed that is felt when opposing forces combine to make an impasse. The ultimate case is of course when we deliberate more or less indefinitely, being acutely aware of the irrevocability of a decision, thus constantly keeping in mind what we are about to lose<sup>58</sup>. Such pivotal decisions typically may only involve a few momentous turning points in a life, but for a certain temperament those agonies are brought down to a much more mundane level, and hence those individuals are sprung into action only by surprise. A wonderful example of this, which I recall being relayed to me some thirty years ago, thus long before I actually read it in the book, is James explanation of how we get out of bed on a freezing morning in a room without fire<sup>59</sup>. Many a person may lie in bed for an hour or so, James recounts, unable to brace themselves to the resolve, although duties are beckoning and they are quite aware of how ignominiously they are acting (or rather not acting). The mystery is of course how to get out of this *impasse*. According to James own personal experience, which he trusts can be generalized, we suddenly find ourselves having got up, with no struggle or conscious decision at all. The explanation being that through some fortunate lapse we forget both the warmth of the bed and the cold of the room, our mind instead attending the duties of the day, and acting upon them while momentarily being unchecked by the inhibition. As to the regular motivations for action and decision James discards the simple pleasure-pain dichotomy. In fact we sometimes cannot help to do things just because they hurts (touching a sore or once again verifying that a particular smell is odious). And often pain nor pleasure play no part at all, as we do not breathe for the pleasure of it, nor idly fingering a knife-handle at the table: but for the fact that we cannot help ourselves, our

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<sup>57</sup> As a child I noticed how effortlessly I could run down stairs, but once I tried to think of how I did it, I would invariably stumble

<sup>58</sup> A typical example being of somebody deserting a spouse for another alternative

<sup>59</sup> once again an 'idyllic' remainder of a predicament that is unknown to most modern readers; yet the principle stays very much the same

nervous system simply overflows. And indeed the pleasure that we often feel after having done an act (most often one of duty) is a result of that act, not the motivation for it.

As to the question of free-will it reduces in psychological terms to whether the amount of effort or attention or consent we can at any time put forth, as well as its duration and intensity, is a fixed function of the object, if so be the case, our wills are not free. Personally James argues that the question is insoluble on purely psychological grounds, and hence he does not dwell on it in this particular volume, except to comment briefly on its ethical dimensions<sup>60</sup>.

In the final chapter James discusses the perennial controversy about nature versus nurture. Why is it that a child can be educated in human ways but not a horse, even if they in principle would be subjected to the same experiences (whatever that means). Experience comes to the organism in two different ways. Directly through its senses, and the way the brain structures those sense-data, and indirectly through evolution, which shapes the very brain. It should be clear that evolution as a fact has never been contested in scientific circles, natural history as a science can in fact be dated to the observation and interpretation of changing types of fossils; but the bone of contention has instead been how evolution is brought about. The classic explanation of inherited characteristics due to Lamarck had at the time of James writing been fairly recently challenged by Darwin. But Darwinism was still 'nothing' but a very simple and beautiful idea (the essence of which has only been fully appreciated in the 20th century) the independent discovery of genes, providing the mechanism through which it was articulated still lay in the future. James comes down as a committed Darwinist, respectfully reviewing the arguments for Lamarck<sup>61</sup> and finding them wanting. He was also, to boot, a subtle Darwinist, pointing out that many of the features of the brain (of which its interest to him as a psychologist naturally took precedence to other organs) were in the nature of molecular<sup>62</sup> accidents, collateral and unintended consequences of other changes. As an example he chooses the susceptibility to music, which has, in his words, no zoological utility and corresponds to no object in the natural environment. As other example he notes sea-sickness, vertigo, and the almost universal susceptibility to the charms of drunkenness. I find James attitude in this regard very sound. There is at present an exaggerated enthusiasm, especially among so called evolutionary psychologists, to ascribe to each human propensity a selective advantage in the past. An enthusiasm that often verges on the comical at the steady production of just-so stories the one more contrived than the other, and being unfalsifiable not subject to any checks and thus in principle unending and luxuriant in its proliferation. Each evolutionary change brings about, as James understands, a cascade of secondary and tertiary effects,

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<sup>60</sup> If the universe would be deterministic, I wonder why should it impose on us a conviction of the same? Thus from a purely logical point of view a conviction that the will is free is far from incompatible with the fact that it is not.

<sup>61</sup> Herbert Spencer, as far as I remember the man responsible for the term 'survival of the fittest (strongest?)' and a proponent of Social Darwinism, was rather muddled in his thinking, as James repeatedly points out, retaining many ideas of Lamarck's in his writings

<sup>62</sup> As noted genes were not yet known to science (as opposed to a certain theologian) but James had a clear conception of their nature.



none of which is selected for<sup>63</sup>. Ultimately James wants to give a psychological explanation for the way we conceive of the world, naively and scientifically. Such an undertaking is of course ultimately circular and blends with the metaphysical. Clearly without a uniformity in nature, logic and reasoning and science as we know of it would be impossible. As to science he observes that in its nature of being contrary to common sense its truth is far more in the nature of religious faith than demonstration<sup>64</sup>. As to rational human thinking the author singles out the principle of skipped intermediaries as the deepest and most fundamental, which seems to boil down to the principle of transitivity (if  $a = b$  and  $b = c$  and  $c = d$  we can conclude  $a = d$  etc) which appears rather trite, at least when being clearly formulated. In fact in this concluding section, when James strives very hard to be on the cutting edge of what later would turn into analytic philosophy, he is less personal and hence less original and imaginative than elsewhere.

James on the whole has dated little, his approach to psychology no doubt more stable and enduring than many of his successors<sup>65</sup>, yet as everyone else he was, as the saying goes, a child of his times. When he writes<sup>66</sup>

*An untutored Italian is, to a great extent, a man of the world; he has instinctive perceptions, tendencies to behaviour, reactions, in a word, upon his environment, which the untutored German wholly lacks. If the latter be not drilled, he is apt to be a thoroughly loutish personage; but on the other hand, the mere absence in his brain of definite innate tendencies enables him to advance by the development, through education, of his purely reasoned thinking, into complex regions of consciousness that the Italian may probably never approach*

most people will raise an eyebrow, but few of them will be seriously offended, the references to national characters simply being to comical to take seriously<sup>67</sup>. Indeed if all reference to Italians and Germans are removed, the statement becomes a rather incisive comments on two different psychological types. On the other hand when he starts to meditate on the intrinsic differences between genders he makes the blood curl. Admittedly he notes how superior a young woman of twenty is to a boy at the same age. Her character is fully formed

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<sup>63</sup> Traffic lights provide an example of the inscrutable ways of evolution. They were obviously designed for traffic control and are still exclusively for that very reason erected. One of their unintended, but very useful effects, is in simplifying directions, as in 'take a right after the third traffic light'.

<sup>64</sup> elsewhere, as the reader may recall, he has remarked that any truth ultimately is anchored in some sensory verification

<sup>65</sup> One example of the latter is of course Freud, who after a period of exaggerated praise, has nowadays fallen into an equally undeserved neglect. Freud born in 1856 was only fourteen years younger than James, but as his arrival on the scientific scene was not until ten years after the completion of James 'Principles' there is understandably no mention of him. But the two psychologists did meet in connection with the psychoanalytical conference in Clark University in 1909, the year before James died. They took a long walk in the woods together, (James hampered by his angina, which would kill him shortly thereafter) talking to each other in German.

<sup>66</sup> page 368

<sup>67</sup> Racial, as opposed to national, characteristics, is of course a very sensitive subject nowadays, less liable to produce laughter than litigation

and she acts with intuitive promptitude and security in all the usual circumstances in which she may be placed. While the character of the boy is still gelatinous. But, he continues, the very absence of prompt tendency in his brain is what ensures that it ultimately will become so much more efficient than that of the woman. Because, he explains,

*The very lack of preappointed trains of thoughts is the ground on which general principles and heads of classification grow up; and the masculine brain deals with new and complex material indirectly by means of these, in a manner which the feminine method of direct intuition, admirably and rapidly as it performs within its limits, can vainly hope to cope with.*

Such sentiments naturally offend the modern reader, who instantly takes exception to such male chauvinistic nonsense. Yet, the very fact that it manages to offend indicates that it strikes some hidden chord. Much of modern extremist feminist writing is not so different from that of James, in tenor if obviously not in exact contents. While James holds that intuition has its limits in thinking<sup>68</sup>, that fine as women's intuition may be in the sphere of personal relations, it is seldom first-rate in mechanics; a modern feminist may without blushing, nor risking to incur any censure, claim a similar superiority for female intuition compared to the rigid and mechanical way of male thinking. This does of course not contradict the views of James as being parochial and dated, only to point out that each time has its own follies, our own being no exception.

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<sup>68</sup> In an interesting footnote he speculates that the more important the social consciousness, i.e. the more weight put on the nature of one's social relations to people, the lower one goes in the scale of culture. In view of the modern craze for so called documentary soaps, one cannot but sympathise with the authors' sentiments.