gantly tattooed with charcoal made from cornstalks. In his ears are large cylinders of wood. He is rather idle, and does not cultivate the ground. His hands are so soft, that, if required to use an axe, he will blister them. The female Toba is strong, and of an agreeable aspect. Both are clothed in *ponchos*, with a breech-clout and sheepskin for warmth. They are much given to drinking a fermented liquor made from native grain, which is, however, denied to the women; and in each encampment there is always one Toba who does not drink, and whose business it is to preserve order and make up quarrels. They have several games with balls, etc., which they play for prizes, such as a sheep or horse. The women are very jealous of one another, and fight bitterly among themselves on the slightest occasion. Armed with sharp fish-bones, the combats, which the males regard with indifference, often end fatally. They believe in a good and in an evil spirit, and in ghosts of the dead."

Thouar had two hundred men put at his disposition by the Bolivian government, and with these undertook to traverse the Grand Chaco, and follow the course of the Pilcomayo. More than once he was obliged to give battle to hostile natives of various tribes, and, but for his Remington guns, might have been routed. The party was also annoyed by numerous jaguars, which prowled about the camp, and frequently stampeded the horses. The river is reported at that season to be fifty metres wide, but flowing between banks eighteen hundred metres apart, and twelve or fifteen metres high. The trees were like acacias, of delicate foliage, growing twenty or thirty feet high. On either side stretch immense plains covered with rich pasturage. Numerous large lakes were observed. On the 10th of November, pale, hungry, worn with fatigue, their clothing in rags, the party reached the Rio Paraguay and civilization.

The gallant explorer has been crowned by the academy, and has received the gold medal of the Société de géographie. It is probable that he will be enrolled in the Legion of honor, as a distinction fairly won.

W. H. D.

COUES'S BIOGEN.

Biogen: a speculation on the origin and nature of life. By ELLIOTT COUES. 2d ed. Boston, *Estes & Lauriat*, 1884. 66 p. 12°.

THIS little book contains a lecture on something to which the author gives the name that stands first on his titlepage. But the principal doctrine of the book, apart from the new thoughts to be suggested in its support by the author, needs no new name; being, as Professor Coues himself insists, nothing but the ancient doctrine that there is an immaterial basis for mental life, and that physical life itself is maintained by a peculiar 'force.' The author has previously privately printed his lecture, which was delivered to the Philosophical society at Washington; but the present edition is the first one actually published. In it the author adds a preface and an appendix. The discussion has plainly grown on his hands; and he expects to follow up this publication with other essays, since he now feels himself "in position to express himself more fully, freely, and explicitly on the subject" than he could do at first.

Not all of our author's readers will find it easy to take him very seriously, and for the benefit of such he has given in his preface a very entertaining collection of amusing things that have been said to him about the lecture since its delivery. Yet, if the little book will be diverting enough to many people, it is not to be regarded as merely a diversion: for Professor Coues has certainly enriched the ancient controversy with several new words, and with several misuses of old words; and the serious critic must accordingly look carefully to see whether this is all, and whether, in fact, philosophy has come out from under our author's pugnacious treatment with any addition save a swollen vocabulary.

It is in the appendix that Professor Coues undertakes to define the terms that are to be used in discussions about the nature of the soul of man. His definitions are of this sort: "A man's 'mind,'" he begins, "is not a *thing* in the ordinary sense of the word 'thing:' it is a relation between two things. These two things are his soul and his body."

But what, then, we ask, is the soul? "The soul," we learn, is a thing, "an actual entity, a living being of knowable and recognizable qualities, attributes, and potencies." "It consists of a kind of semi-material substance." This substance is "animalized astral fluid; that is to say, some quantity of the universal ether, modified by vital force." To this 'soul-stuff' the name 'biogen' is applied. It corresponds closely to the recently famous 'fourth state of matter.' It is the 'od' of Professor Reichenbach. It exists in all animals and plants while they live. This stuff helps the spirit to act upon matter. As for spirit, it is the immaterial element in the world. Soul and spirit are, therefore, not the same thing. Soul is 'semi-material:' spirit is not material at all. Spirit cannot act directly on matter: soul is the body of the spirit, and helps it to act on grosser matter. This semi-material soul persists after death, and is then all of a man that remains, besides his immortal spirit. Under earthly conditions, the gross material body is added, and interaction between this body and the spirit is made possible by the presence of the semi-material soul. The soul-

substance, or biogen, is the vital principle of the living man. Thus far, then, our author.

We are in no wise concerned, as yet, to test the truth of all this. We desire, for the first, only to examine the good sense of it. Our author suggests several interesting thoughts by his very original definitions. Mind is only a relation between soul and body, but not a thing. 'Mind,' also, 'is what the spirit thinks in consequence of its connection with matter.' 'Reason is the mistress of the mind.' 'Its exercise is judgment, or the critical faculty.' Hence, it seems, Professor Coues would define a judgment as "the exercise of the mistress of a relation that the spirit thinks, in consequence of its (the spirit's) connection with matter." This definition obviously expresses a very distinct advance in the clearness of philosophic thought, and ought to be useful in future logic textbooks. The materials for it are found on one page together. However, it is somewhat unfair to judge Professor Coues by any one page of his book, since he says various things on various pages; such as, that "mind [viz., the aforesaid 'relation'] is what the spirit retains when it becomes disembodied" (p. 61), and that "mind, as the expression of a relation between the soul and the body, necessarily disappears when that relation is discontinued" (p. 13). It follows from all this, that Professor Coues has been led to enrich philosophic language by a definition of mind of which he himself can make nothing, and of which we, of course, cannot hope to make much more.

But of mind, enough. Let us think of this *soul-stuff*. It is 'semi-material.' This may mean either of two things: it may mean that soul is made, half of it out of matter, and half of it out of something else; or that the soul is a sort of a something that is neither matter nor the opposite of matter, but halfway between the two. Which is our author's meaning? If we go from the appendix to the lecture, we find (p. 55) a definition of biogen, or soul-stuff, as "spirit in combination with the minimum of matter necessary to its manifestation." This would seem to answer our question. Biogen, or soul-stuff, is semi-material because it is spirit plus a minimum of matter. The same view is borne out by expressions in the appendix itself. But other expressions give countenance to the other view. The soul-stuff is the 'body of the spirit.' Its substance is the 'medium of communication between spirit and matter.' It is tenuous, elastic, and probably not atomic in structure. It flows about, it is sometimes projected from the living body during sleep, etc. In all these cases the *semi* in *semi-material* seems to refer, not to the composition of biogen as being matter plus spirit, but to its nature as being halfway between matter and spirit. Soul-stuff is thus expressly opposed both to spirit and to gross matter, being a sort of a something in between the two. One infers, from this confusion and self-contradiction, that Professor Coues has written his essay on biogen without ever knowing what he really means by the word, although it is all his own.

The relation of this biogen to 'vital force' is also a question which a careful reader anxiously considers. Biogen is not a force at all (p. 64), but a THING (the capitals are our author's). When acted upon by spirit, however, it is the 'vital principle;' and the 'vital principle,' as we learn from p. 63, is "simply the force by which the spirit acts upon matter through the medium of the soul." Hence, to sum it all up again, the soul-stuff, which is not a force, but a thing, becomes, nevertheless, when acted upon by the spirit, a force; viz., that force by which the spirit acts upon matter through the medium of this soul-stuff itself. This we must leave to the reader's ingenuity to unravel. We confess ourselves baffled.

Clear ideas about biogen the reader must therefore not expect. Professor Coues does not go to his philosophic studies for such cheap commodities, and nobody need demand such things from him in this field. He has simply amused himself a little by telling us about the well-known traditional views of many people, using a hopelessly muddled terminology of his own invention to express no more of the traditional view itself than many well-instructed children in religious schools can tell us. And they would understand their language quite as clearly as Professor Coues seems to understand his own. No apology, to be sure, would be needed, if Professor Coues had simply come forward to maintain in a plain manner so ancient and respectable a faith as that in the existence of immaterial forces and agents: but there is, at the same time, no reason why he should confuse our minds with new meanings, that are yet no meanings, given to words that we have long since learned to use somehow; and there is no need of new words, unless the inventor can give us some clear idea of what they are to mean. Therefore the value of our author's contribution to the discussion becomes forthwith obvious.

The lecture itself is devoted to proving the dogmas thus defined. But it is enough to say of the whole argument therein set forth, that our author seems entirely to forget one very

simple question which nowadays the plain man puts whenever he hears of such a discussion as this. The objection to 'vital force' and 'immaterial agents' in the plain man's mind is, that they are like the 'dormitive virtue' of opium. They are just x and y, used where all hypotheses of a more definite nature just now fail to do the required work; and they simply say that some conditions not now better known must be present to cause certain phenomena, such as those of life, or such as the phenomena of the human mind. They differ from x and y only in being less frank expressions of ignorance. They masquerade (so thinks our plain man) in the long-clothes of Latin or Greek terms; but they are none the better for that, and we are none the wiser. Now, Professor Coues altogether neglects, in his discussion, to set the plain man's mind at rest about this matter, so far as this objection would apply to his biogen. Apart from the wildest assumptions concerning the 'ether' or the 'astral fluid,' Professor Coues has nothing to say in favor of biogen, save that nobody can make living matter, and that nobody can explain the origin of our minds. Hence, he reasons, the soul is immortal, and biogen is a fact.

All this is of course tedious. We have long since abandoned such methods. Materialism, as a philosophic theory, is indeed untenable enough, and no intelligent student of philosophy in our day is apt to become an old-fashioned dogmatic materialist; but heaven knows, that, if such arguments as this of our author were our only refuge from materialism, we should all forthwith be either materialists or word-mongers.

Such thinkers as Professor Coues lets himself be joined with in this lecture, have no genuine conception of what a philosophic problem is. To them materialism is a doctrine to be combated by talking about the mysterious character of life, and the possibility of 'semi-material' substances. They do not see, that if the spiritual character of the world, and the supremacy of reason in it, are to be proved at all, they must be so proved as to make reason actually manifest in all parts of the world. If an atom or a brick-bat, however incomplete an expression of reason it may be, is not as truly an embodiment of the rational and spiritual reality that lies at the foundation of things as is the best-organized structure on the planet, then there is no truth at all in a spiritual theory of the world. Therefore let nobody fancy that he proves or disproves the world to be rational or spiritual by proving or disproving that there are one or two subtle fluids in it more or less than had been noticed before. If life result from an altogether unique natural 'force,' so be it. Prove and make plain the meaning of the fact, and we shall be as content with it as with any other natural truth. But that proof would not make life one atom more or less spiritually significant than it now is. The moral and the rational order of the universe would be in no wise more or less manifest; the fallacy of philosophic materialism would be no more or less evident; and, if we could make shiploads of Shakspeares in our laboratories to-day, the spiritual nature of things would be no less certain. Discussions that dwell with rapture on possible, vaguely defined, mysterious, 'semi-material' fluids and potencies, help us no nearer to the explanation or to the proof of the rational truth of things, and do help us to think less rationally ourselves.

There are, in fact, two forms of idealism prevalent amongst us. One we might call the mendicant form of idealism; since it is always begging the world of experience to show us something fantastic, romantic, intangible, unutterable, so that we may live in awe as at a juggler's show. To this view God is himself a sort of showman, who likes to hear our outbursts of wonder when he does odd things. Such idealists are never so sure of the spiritual truth of things as when somebody has just finished a ghost-story. Or, if they abandon this fashion of idealism, they devote themselves to inventing halfway substances, too fine to be seen or touched, too subtle to be reached by physical experiments of any sort, far less the objects of experience than is the universal ether an object of experience, and unlike the ether in having no definable properties. These they glory in. These are the earnest to them that our world is not commonplace nor gross, but the offspring of reason, the dwelling-place of God's power.

To such idealism Professor Coues seems willing to join himself. His idealism, it would seem, would be in some danger if we found how to produce live germs in our laboratories. He hints at mysterious stories of a supernatural character as indicating something about the nature of biogen. He seems to depend on the phenomena that are not yet explained, as the sole foundation for a spiritual theory of the world; and he seems, meanwhile, to suppose himself a kind of Elijah among those worshippers of Baal, the materialists. Only believers in the fantastic and indefinable can be idealists; and he is one of the few faithful.

But there is another form of idealism in the

world, and that idealism is indifferent to all this love of merely fantastic and romantic mystery. It regards the world as through and through rational, and for that very reason it does not suppose phenomena to be more divine, merely because of the accident that we cannot explain them by any general rules of experience. It insists, that if we could produce new life of any order, high or low, as easily as we can strike a light, life would be no more and no less a manifestation of the divine reason than it now is. And this idealism needs no subtle 'astral fluids' to convince it that there are spiritual realities. The true nature of a cow is not more manifest in skimmed and watered milk than it is in the rich new milk; and this trust in 'subtle media' is merely a demand that we shall believe only the skimmed milk of nature to be a genuine expression of the divine life. If all the matter in nature were for our senses composed of indivisible particles as big as paving-stones, and if every heap of these paving-stones, however and whenever made, behaved just like a rational being, and wrote philosophic lectures, the spiritual nature of reality would be just as manifest as it now is, and philosophic materialism would be just as absurd. Hence Professor Coues does what this second form of idealism regards as something worse than wasted labor. He not only talks confusedly about his unintelligible biogen, but he helps to disseminate the impression that a belief in a spiritual truth in the world depends upon a faith in the existence of some fluid so thin that you cannot say any thing definite about it. All this is rank paganism; for it is analogous to the views of those peoples whose gods are conceived after the fashion of smoke.

JOSIAH ROYCE.

REPORT OF THE OBSERVATORY AT HERÉNY, HUNGARY.

Publikationen des astrophysikalischen observatoriums zu Herény in Ungarn. Herausgegeben von EUGEN VON GOTHARD. Heft i. Herény, 1884. 104 p., 6 pl. 4°.

THE astro-physical observatory of Herény has recently issued its first volume of publications, prefaced by the director, von Gothard, with a graceful tribute to his friend, the well-known Dr. von Konkoly.

The observatory is situated on the estate of Herény, near Steinamanger, in the western part of Hungary. The main building was finished in 1881, and is of two stories, with a tower for the equatorial at one corner: a smaller building receives the transit instrument. The rooms are all admirably planned and arranged to promote the comfort and efficiency of the observers. In the upper story we find an office, a room for the director, and a large, well-appointed physical laboratory. On the ground-floor there are, besides two smaller rooms, a chemical laboratory fitted with many conveniences, and a workshop. The workshop, a feature in which most of our observatories are deficient, is supplied with tools intended not only for making minor repairs, but for constructing many valuable pieces of apparatus; and what is even more valuable, as it is unusual, the director and his assistants appear to be skilful mechanics.

The principal instrument of the observatory is a Newtonian reflector by Browning, of ten and one-fourth inches aperture, which is provided with a very complete outfit of photographic and spectroscopic accessories. A little portable transit of about an inch aperture, the object-glass of which is by Fraunhofer, and the mounting by Reichenbach, is used for determining time. There are two astronomical clocks by Freitag, a set of meteorological instruments, and a large collection of subsidiary physical apparatus. The library, though still small, is steadily increasing.

The director of the observatory, Eugen von Gothard, is assisted by his brothers, Alexander and Stefan von Gothard, and by Josef Molnar. The observations in the present volume are, for the most part, upon the spectra of the fixed stars. In 1881 and 1882 the spectra and colors of nearly three hundred fixed stars were examined, and the stars classified according to Vogel's types. Spectroscopic observations, and observations of a generally descriptive nature, were also made of Wells's comet, the great comet of 1882, and Barnard's comet. This, together with observations for time, and the care of the clocks, has been the director's work. Alexander von Gothard contributes the physical observations upon Jupiter and Mars, accompanied by twenty-four well-executed sketches. Miscellaneous observations include observations of the solar eclipse of May 16, 1882, and the August meteors of that year. Satisfactory observations of the transit of Venus were not obtained on account of unfavorable weather.

In the typography of the volume, and in the care and neatness with which the plates are prepared and bound, the young observatory will compare favorably with many older institutions.